

SHOUT
SHARE IT





System of Maps

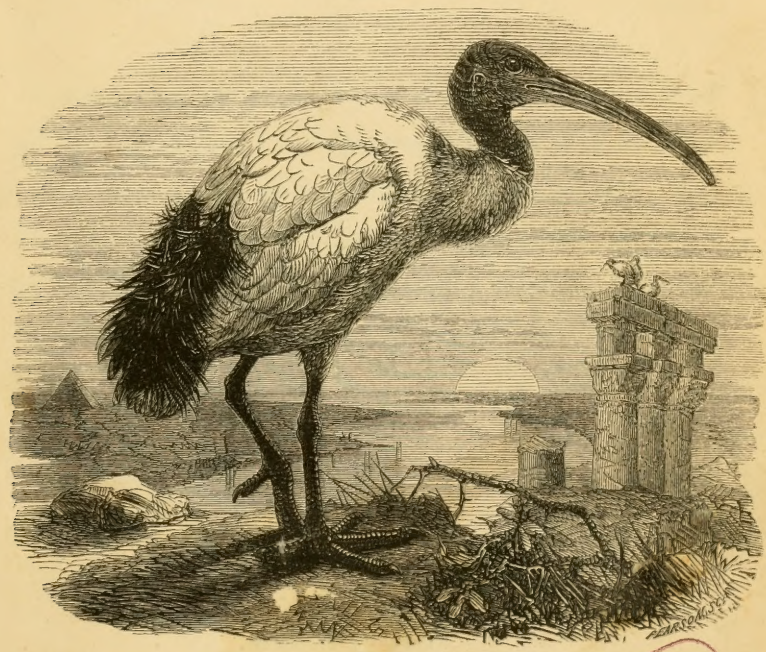
598.2054

THE IBIS,

A

QUARTERLY JOURNAL OF ORNITHOLOGY.

EDITED BY
ALFRED NEWTON, M.A.,
PROFESSOR OF ZOOLOGY AND COMPARATIVE ANATOMY
IN THE UNIVERSITY OF CAMBRIDGE,
F.L.S., F.Z.S., ETC., ETC.

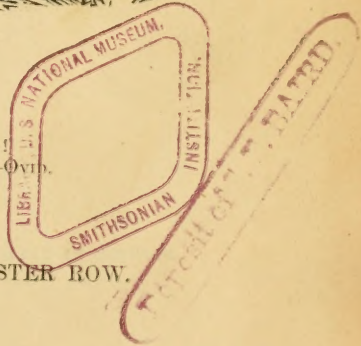


VOL. IV. 1868.
NEW SERIES.

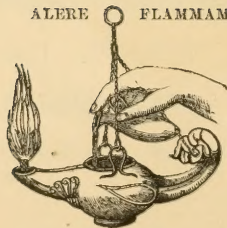
Ibidis interea tu quoque nomen habet!

—OVID.

LONDON:
JOHN VAN VOORST, 1 PATERNOSTER ROW.
1868.



ALERE FLAMMAM.



PRINTED BY TAYLOR AND FRANCIS, RED LION COURT, FLEET STREET.

PREFACE.

IF prosperity attends that nation whose history is void of stirring events, the same may be said of a Journal which meets with no interruption in its course ; and the Editor of 'The Ibis' has only once more to return his deeply felt thanks to the many friends, both far and near, who have during the past year helped to lighten his task.

A. N.

Magdalene College, Cambridge.
October 1868.

BRITISH ORNITHOLOGISTS' UNION.

1868.

Ordinary Members.

- JOHN H. BARNEBY-LUTLEY, M.A.; Brockhampton, Herefordshire.
HENRY BUCKLEY, F.Z.S.; Edgbaston, Birmingham.
THOMAS EDWARD BUCKLEY, B.A., F.Z.S.; Trinity College, Cambridge.
JOHN H. COCHRANE; Dunkathel, County Cork.
ARTHUR WILLIAM CRICHTON, B.A., F.L.S., F.Z.S.; Broadward Hall, Salop.
HENRY EELES DRESSER, F.Z.S.; The Firs, South Norwood, Surrey.
HENRY MAURICE DRUMMOND-HAY, C.M.Z.S., Lieutenant-Colonel, Royal Perth Rifles; Seggieden, Perthshire.
HENRY JOHN ELWES, F.Z.S., Scots Fusilier Guards; 41 Portman Square, London.
THOMAS CAMPBELL EYTON, F.Z.S.; Eyton Hall, Salop.
GEORGE GOOCH FOWLER, B.A.; Gunton Hall, Suffolk.
HENRY ELLIOTT FOX, B.A.; 21 Brondesbury Villas, Kilburn, Middlesex.
FREDERICK DUCANE GODMAN, F.L.S., F.Z.S.; 55 Lowndes Square, London.
PERCY SANDEN GODMAN, B.A., C.M.Z.S.; Borregaard, Sarpsborg, Norway.
JOHN HENRY GURNEY, F.Z.S., &c.
JAMES EDMUND HARTING, F.L.S., F.Z.S.; 24 Lincoln's Inn Fields, London.
REV. WILLIAM HENRY HAWKER, M.A., F.Z.S.; Ashford, Sussex.
REV. HERBERT S. HAWKINS, M.A.; Rector of Beyton, Suffolk.
WILFRID HUDLESTON HUDLESTON, M.A., F.Z.S.; 21 Gloucester Place, Portman Square, London.

ARTHUR EDWARD KNOX, M.A., F.L.S., F.Z.S.; Trotton House, Sussex.

Right Hon. THOMAS LYTTLETON, Lord LILFORD, F.L.S., F.Z.S., &c.; Lilford Hall, Northants.

ALEXANDER GOODMAN MORE, F.L.S., &c.; 3 Botanic View, Glasnevin, Dublin.

EDWARD CLOUGH NEWCOME; Feltwell Hall, Norfolk.

ALFRED NEWTON, M.A., F.L.S., F.Z.S., &c.; Magdalene College, Cambridge.

EDWARD NEWTON, M.A., F.L.S., C.M.Z.S.; Auditor-General, Mauritius.

JOHN WILLIAM POWLETT-ORDE, F.Z.S., late Captain 42nd (Royal Highland) Regiment; Auchnaba House, Argyllshire.

E. J. RODES; 37 Cambridge Terrace, London.

GEORGE DAWSON ROWLEY, M.A., F.Z.S.; 5 Peel Terrace, Brighton.

OSBERT SALVIN, M.A., F.L.S., F.Z.S.; 32 The Grove, Boltons, London.

PHILIP LUTLEY SCLATER, M.A., Ph.D., F.R.S., F.L.S., Sec. Z.S., &c.; 15 Lower Belgrave Street, London.

CHARLES WILLIAM SHEPHERD, M.A., F.Z.S.; Trotterscliffe, Kent.

Rev. ALFRED CHARLES SMITH, M.A., Rector of Yatesbury, Wilts.

ROWLAND M. SPERLING, Acting-Commander Royal Navy, Her Majesty's Ship 'Raccoon.'

HENRY STEVENSON, F.L.S.; Unthank's Road, Norwich.

H. S. LE STRANGE, Her Majesty's Legation, Paris.

Rev. EDWARD CAVENDISH TAYLOR, M.A., F.Z.S.; Oxford and Cambridge Club, London.

GEORGE CAVENDISH TAYLOR, F.Z.S.; 42 Elvaston Place, London.

Rev. HENRY BAKER TRISTRAM, M.A., LL.D., F.R.S., F.L.S., C.M.Z.S., &c.; Master of Greatham Hospital, Durham.

HENRY MORRIS UPCHER, F.Z.S.; Sheringham Hall, Norfolk.

Right Hon. ARTHUR Viscount WALDEN, F.L.S., Pres. Z.S.; 15 Cromwell Road, London.

Rev. J. WILLIAMS; Tring Park, Herts.

Extra-Ordinary Members.

EDWARD BLYTH, Hon. Memb. As. Soc.; 27 Saint Mark's Crescent, London.

ALFRED RUSSEL WALLACE, F.Z.S.; 9 Saint Mark's Crescent, London.

Honorary Members.

Professor SPENCER F. BAIRD, Assistant Secretary to the Smithsonian Institution, *Washington*.

Doctor EDUARD BALDAMUS, Moritzzwinger, No. 7, *Halle a. S.*, Sekretär der deutschen Ornithologen-Gesellschaft.

Doctor JEAN CABANIS, Erster Custos am Königlichen Museum der Friedrich-Wilhelm's Universität zu *Berlin*.

JOHN CASSIN, Academy of Natural Sciences, *Philadelphia*.

Doctor GUSTAV HARTLAUB, *Bremen*.

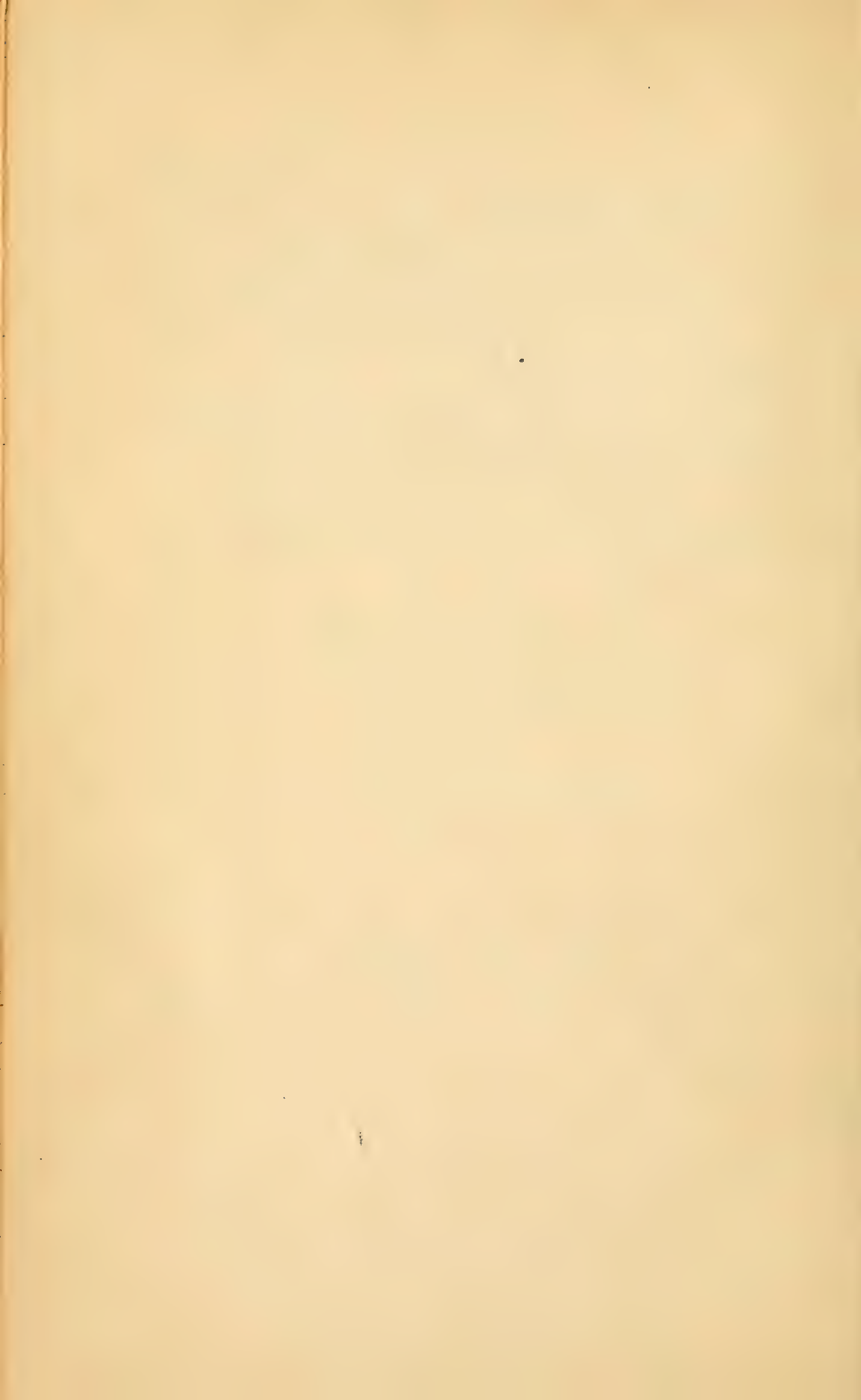
T. C. JERDON, Surgeon-Major in Her Majesty's Army, *Madras*.

EDGAR LEOPOLD LAYARD, F.Z.S., South African Museum, *Capetown*.

Professor J. REINHARDT, Kongelige Naturhistoriske Museum i *Kjöbenhavn*.

ROBERT SWINHOE, F.Z.S., F.R.G.S., Her Majesty's Consul at *Amoy*.

JULES P. VERREAUX, Aide-Naturaliste du Muséum d'Histoire Naturelle à *Paris*.



CONTENTS OF VOL. IV.—NEW SERIES.

(1868.)

NUMBER XIII., *January.*

	Page
I. On the Raptorial Birds of the Malay Archipelago. By ALFRED R. WALLACE, F.Z.S. &c. (Plate I.)	1
II. Stray Notes on Ornithology in India. By ALLAN HUME, C.B.	28
III. An Eighth additional List of Birds from Natal. By J. H. GURNEY, F.Z.S. (Plate II.)	40
IV. Ornithological Notes from Amoy. By ROBERT SWINHOC, Her Majesty's Consul, F.Z.S. &c.	52
V. Observations on the Egg-beds of <i>Æpyornis</i> . By ALFRED GRANDIDIER	65
VI. Note on <i>Lanius melanthes</i> , Swinhoc, and on <i>Lanius ce- phalomelas</i> , Bp. By Viscount WALDEN	68
VII. On a recently-discovered Tanager of the genus <i>Calliste</i> . By P. L. SCLATER, M.A., Ph.D., F.R.S., Secretary to the Zoolo- gical Society of London. (Plate III.)	71
VIII. Notes on Various Indian Birds. By R. C. BEAVAN, Bengal Staff Corps, C.M.Z.S.	73
IX. Remarks on <i>Professor Huxley's</i> proposed Classification of Birds. By THE EDITOR	85
X. Notices of Recent Ornithological Publications:—	
1. <i>English</i> :—Sclater's edition of Nitzsch's 'Pterylography'; Eyton's 'Osteologia Avium'; G. R. Gray's 'List of <i>Gallinæ</i> '; Rodd's 'Ornithology of Cornwall'; Bullmore's 'Cornish Fauna';	

	Page
J. H. Gurney, jun., on Occurrences of the Grey Phalarope; Layard's 'Birds of South Africa'	96
2. <i>French</i> :—Verreaux on New Birds; Ornithological papers in the 'Revue de Zoologie'	102
3. <i>Swiss</i> :—'Bulletin de la Société Ornithologique Suisse,' vol. i. part 2	104
4. <i>Italian</i> :—Riva's 'Ornitologo Ticinese;' Bettoni's 'Uccelli che nidificano in Lombardia,' parts 1-15; Cara's 'Osservazioni al Catalogo dal Dottore Salvadori'	105
5. <i>German</i> :—Finsch and Hartlaub, 'Ornithologie der Viti-, Samoa- und Tonga-Inseln;' Hoffmann, 'Die Waldschnepfe'	107
6. <i>Dutch and Belgian</i> :—Schlegel's 'Muséum des Pays-Bas,' part 9; Finsch's 'Die Papageien,' vol. i.; Dubois's 'Archives Cosmologiques'	110
7. <i>Norwegian and Swedish</i> :—Collett's 'Observationer fra Hvaløerne;' Holmgren's 'Skandinaviens Foglar,' part 1; Wes- terlund's 'Skandinavisk Oologi'	113
8. <i>American</i> :—Lawrence on New American Birds and on New <i>Trochilidae</i> ; Cassin's 'Third Study of the <i>Icteride</i> ;' Jack- son on the Habits of <i>Melanerpes formicivorus</i>	114
9. <i>Australian</i> :—Diggles's 'Ornithology of Australia,' parts 1 to 10	117

XI. Letters, Announcements, &c.:—

Letters from Messrs. E. P. Ramsay and E. L. Layard, Prof. M'Coy, Dr. Cunningham, and Messrs. J. H. Gurney, W. E. Brooks, E. Blyth, and Tristram; Nature of the Colouring- matter in the Touracoos; Deaths of Mr. Chambers-Hodgetts and Dr. David Scott; Mr. W. Jesse's Appointment as Zoologist to the Abyssinian Expedition; Erratum	118
--	-----

NUMBER XIV., April.

XII. Notes on Mr. Layard's 'Birds of South Africa. By J. H. GURNEY, F.Z.S. (Plate IV.)	135
---	-----

XIII. Notes on Various Indian Birds. By R. C. BEAVAN, Bengal Staff Corps, C.M.Z.S.	165
---	-----

	Page
XIV. Note on <i>Hypocolius ampelinus</i> , Bp. By Dr. M. T. von HEUGLIN. (Plate V.)	181
XV. List of Birds collected in the Straits of Magellan by Dr. Cunningham, with remarks on the Patagonian Avifauna. By P. L. SCLATER, M.A., Ph.D., F.R.S., and OSBERT SALVIN, M.A., F.L.S., F.Z.S.	183
XVI. Notes on the Birds observed during a march from Simla to Mussoorie. By ROBERT C. TYTLER, Colonel in Her Majesty's Indian Army, C.M.Z.S. &c.	190
XVII. On the Ornithology of Palestine. Part VII. By the Rev. H. B. TRISTRAM, M.A., F.L.S., C.M.Z.S. (Plates VI. & VII.)	204
XVIII. Corrections of, and additions to, the Catalogue of the Raptorial Birds of the Malay Archipelago. By ALFRED R. WALLACE, F.Z.S. &c.	215
XIX. Notices of Recent Ornithological Publications:—	
1. <i>English</i> :—Gould's 'Birds of Great Britain,' parts xi. and xii.; Gould's 'Birds of Asia,' part xix.; Gould's 'Birds of Australia'—Supplement, part iv.; Darwin's 'Variation of Animals and Plants under Domestication'; Tristram's 'Natural History of the Bible'; A. Leith Adams's 'Wanderings of a Naturalist in India'; Blackburn's 'Birds drawn from Nature'	216
2. <i>French</i> :—A. Milne-Edwards's 'Oiseaux Fossiles de la France'; Verreaux on New Birds; Ornithological Papers in the 'Revue de Zoologie'	220
3. <i>Dutch</i> :—Schlegel and Pollen—'Recherches sur la Faune de Madagascar'; Crommelin's 'Contributions à l'Hybridologie Ornithologique'	224
4. <i>German</i> :—Von Pelzeln's 'Ornithologie Brasiliens'; Von Pelzeln on Birds of New Zealand; 'Journal für Ornithologie—Neue Folge'; Rudolf Blasius's 'Eischaale der Vögel'	226
5. <i>Swedish</i> :—Malmgren on the Natural History of Spitsbergen	229
6. <i>American</i> :—Coues on the Anatomy of <i>Colymbus glacialis</i> ; Bryant's 'Birds seen at the Bahamas' and 'Birds of St. Domingo'; Lawrence on Birds of New Granada; Cassin's 'Fasti Ornithologiæ—No. 3'	229

XX. Letters, Announcements, &c. :—

Letters from Messrs. E. P. Ramsay, Allan Hume, E. L. Layard, Blyth, J. H. Gurney, Gould, W. Jesse, and O. Salvin; Incubation of the *Apteryx* in England; Sale of the Collection of the late Prince Maximilian of Wied; Deaths of Messrs. F. C. Du-bois, C. J. Andersson, E. Verreaux, and Edward Jesse . . . 231

NUMBER XV., July.

XXI. Notes on Mr. Layard's 'Birds of South Africa.' By J. H. GURNEY, F.Z.S. (Plate VIII.); with additional Notes by THE EDITOR. 253

XXII. Notes on Birds breeding in the neighbourhood of Sydney. By EDWARD P. RAMSAY, C.M.Z.S.. . . . 271

XXIII. Note on *Cichladusa arquata* and *C. guttata*. By Dr. M. T. VON HEUGLIN. (Plate IX.) 280

XXIV. Ornithological Notes from the Ethiopian Region. By ROWLAND M. SPERLING, Acting-Commander, H.M.S. 'Raccoon' . 282

XXV. On the Genus *Acredula*. By R. B. SHARPE . . . 295

XXVI. On the Species of Birds collected by Dr. Stoliczka in Thibet and the Himalayas. By AUGUST VON PELZELN . . . 302

XXVII. On the Ornithology of Palestine. Part VIII. By the Rev. H. B. TRISTRAM, M.A., LL.D., F.R.S., &c. 321

XXVIII. Notices of Recent Ornithological Publications:—

1. *English*:—Selater and Salvin's 'Exotic Ornithology,' parts iv.-vi.; Kennedy's 'Birds of Berkshire and Buckinghamshire;' 'Random Notes on Indian and Burman Ornithology;' Harting's Blank 'Catalogue' for Collectors 335

2. *German*:—Von Marten's 'Zoology of the Prussian Expedition to Eastern Asia;' Supplement to Bädcker's 'Eggs of European Birds' 340

3. *Swiss*:—'Bulletin de la Société Ornithologique de la Suisse,' vol. ii. part 1 342

	Page
4. <i>Italian</i> :—Arrigoni's History of Ornithology; Salvadori on De Filippi's Ornithological Labours, and on <i>Prionochilus</i> . . .	342
5. <i>Portuguese</i> :—Barboza du Bocage's papers in the 'Jornal de Sciencias de Lisboa'	344
6. <i>American</i> :—Elliot's 'Birds of North America,' parts v.-ix.; Samuel's 'Ornithology and Oology of New England;' Ornithological Papers in the 'American Naturalist'	345
7. <i>Australasian</i> :—Diggles's 'Ornithology of Australia,' parts xi.-xv.	348

XXIX. Letters, Announcements, &c.:—

Letters from Messrs. W. E. Brooks, Swinhoe, and Blyth, Capt. Beavan, Mr. J. H. Gurney, and Prof. Huxley; Skeletons of the Dodo and Solitaire	349
--	-----

NUMBER XVI., October.

XXX. On the former Existence of a large Pelican in the English Fens. By ALPHONSE MILNE-EDWARDS	363
--	-----

XXXI. Notes on Various Indian Birds. By R. C. BEAVAN, Bengal Staff Corps, C.M.Z.S.	370
--	-----

XXXII. On some of the Birds of Prey of Central Bulgaria. By C. FARMAN, C.E.	406
---	-----

XXXIII. Synopsis of the Birds of Vancouver Island. By ROBERT BROWN, F.R.G.S.	414
--	-----

XXXIV. A sketch of the Birds of Portugal. By the Rev. A. C. SMITH, M.A.	428
---	-----

XXXV. A Ninth additional List of Birds from Natal. By J. H. GURNEY, F.Z.S. (Plate X.).	460
--	-----

XXXVI. Notices of Recent Ornithological Publications:—

1. *English*:—Gould's 'Birds of Asia,' part xx.; Sharpe's 'Monograph of the *Alcedinidæ*,' part i.; Collingwood's 'Rambles

	Page
of a Naturalist; Parker's 'Monograph of the Shoulder-Girdle;' Pettigrew on Flight in the Animal Kingdom	472
2. <i>Dutch</i> :—Schlegel and Pollen—'Recherches sur la Faune de Madagascar,' part iii.; Millies on a newly discovered figure of the Dodo	476
3. <i>German</i> :—Jäckel on an old figure of the Dodo; Von Frauenfeld on a newly discovered figure of the Dodo and of a second short-winged bird	478
4. <i>Italian</i> :—Salvadori on new birds from Borneo	482
5. <i>American</i> :—Coues's 'Monograph of the <i>Alcidae</i> ,' and on the Birds of Arizona; Lawrence on new Central-American Birds	483

XXXVII. Letters, Announcements, &c.:—

Letters from Dr. Cunningham, Capts. Feilden and Beavan, Dr. Giglioli, and Messrs. Verreaux, G. R. Crotch, and P. L. Selater; The 'South African Quarterly Journal;' Further discovery of Dodo-figures in Holland; Announcement of Mr. Buller's 'Birds of New Zealand;' Incubation of the <i>Apteryx</i> in England; Return of Mr. Jesse from Abyssinia	486
Index	505

PLATES IN VOL. IV.

NEW SERIES.

	Page
I. <i>Spizaetus nanus</i>	14
II. <i>Erythropus amurensis</i>	41
III. <i>Calliste cabanisi</i>	71
IV. <i>Hirundo alfredi</i>	153
V. <i>Hypocolius ampelinus</i>	181
VI. <i>Petronia brachydactyla</i>	206
VII. <i>Serinus aurifrons</i>	208
VIII. <i>Glareola nordmanni</i>	254
IX. { Fig. 1. <i>Cichladusa arquata</i>	280
{ Fig. 2. — <i>guttata</i>	281
X. <i>Hyphantornis mariquensis</i>	466

ERRATA ET CORRIGENDA.

Page	Line
44,	28, for <i>Jugela</i> read <i>Tugela</i> .
67,	17, for <i>Clyclostoma</i> read <i>Cyclostoma</i> .
87,	26, for group read groups.
104,	1, for represented read reprinted.
105,	3, for <i>auricularis</i> read <i>auriculatus</i> .
108,	25, for Society read Friendly.
112,	27, for Demeezenaker read Demeezemaker.
115,	1, for <i>superciliosus</i> read <i>superciliaris</i> .
115,	28, for <i>keneri</i> read <i>kieneri</i> .
116,	5, after <i>I. grace-annæ</i> add <i>Cassicus melanurus</i> .
160,	29, for <i>Dryoscopus</i> read <i>Dryoscopus</i> .
166,	The last paragraph as well as the first on page 167 refer to the preceding species (see page 356).
230,	23, for There read These.
270,	9, for <i>Chrysoptil's</i> read <i>Chrysoptilus</i> .
314,	12, for LIN ATRUM read LINEATUM.
318,	24, for <i>L. ul</i> read <i>ulul</i> .
321,	16, for AITRA read AITHYA.
445,	28, for HORT read HORTULANUS.

THE IBIS.

NEW SERIES.

No. XIII. JANUARY 1868.

I.—*On the Raptorial Birds of the Malay Archipelago.*

By ALFRED R. WALLACE, F.Z.S. &c.

(Plate I.)

IN the 'Muséum d'Histoire Naturelle des Pays-Bas,' the publication of which was commenced in 1862, Professor Schlegel has given a complete enumeration, often accompanied by descriptions and measurements, of all the specimens of Raptorial Birds contained in the Leyden Museum; and in his more recent work, 'Les Oiseaux des Indes Néerlandaises,' the third monograph*, published in 1866, contains figures and descriptions of all the *Falconidæ* known to inhabit the Dutch East-Indian possessions. Later still, in the 'Proceedings of the Zoological Society of London' for 1867, is a paper by Dr. Kaup, "On the *Nisi* and *Astures* of the Indian Archipelago and of New Holland," undoubtedly the most difficult group of the Eastern *Accipitres*. It may fairly be asked, therefore, what novelty or interest the present Catalogue possesses, to render it worthy of publication in 'The Ibis.'

My answer is, that Professor Schlegel's works above enumerated do not give a complete list of the Malayan *Accipitres*; for the first is a Museum Catalogue, the second a Colonial fauna;

* Here quoted as "Valkv. Nederl. Ind."

and, therefore, all species which do not exist in the Leyden Museum and which inhabit the Malay Archipelago, Northern Borneo, the Philippine Islands, Eastern New Guinea, and the islands extending thence to the Solomon Islands do not find a place in his works, although they undoubtedly form a part of the fauna of the Malay Archipelago. In the next place, I possess an extensive collection of this group formed by myself, comprising *seventy-two* out of the *eighty-seven* known species, and containing fine series of many of the species accurately labelled with locality and sex, with notes of the colours of the soft parts, which information I desire to make known in a connected form. Lastly, I differ in many points from both Prof. Schlegel and Dr. Kaup, and wish to explain the reasons why I differ from such eminent men.

With the exception that Vultures are entirely absent, birds of prey are tolerably plentiful in the Archipelago, the total number of species being greater than those of India as restricted by Dr. Jerdon. This large number seems to be chiefly due to the breaking-up of the district into a vast number of islands, most of which were separated at a more remote epoch than that of the origin of many existing species, while some date from a high geological antiquity. Closely allied representative species, therefore, abound and swell the total amount, although in any one island or locality the number to be obtained is very small. The average number of *Falconidæ* found in an island is ten, of *Strigidæ* three. Java contains the largest number, possessing seventeen Hawks and eight Owls; Celebes comes next, with the same number of Hawks, but only five Owls; whereas in many districts of India, equal in extent to one of these islands, double this number of species would probably be obtained. In Ceylon Mr. Layard obtained twenty-three Hawks and seven Owls.

Of the subfamilies, the true Hawks (*Accipitrinæ*) are the most abundant, numbering eighteen species; next come the Eagles (*Aquilinæ*) with sixteen species, the Kites (*Milvinæ*) with ten species, the Falcons (*Falconinæ*) with six species, and the Buzzards and Harriers (*Buteoninæ*) three species. Taking the groups of islands, the number of species diminishes pretty regularly from west to east. The Indo-Malay group (Malacca,

Sumatra, Java, and Borneo) has thirty-eight species, the Philippines (no doubt imperfectly explored) ten, the Celebes group twenty-five, Moluccan group twenty-five, Timor group sixteen, Papuan group fourteen. Yet, owing to the larger number of islands, and the richness of Celebes as compared with the Philippines, the Austro-Malayan Region, on the east, possesses more species than the Indo-Malayan Region on the west, the former having fifty-eight, the latter forty-four species. The greater power of flight and more roaming habits of the diurnal as compared with the nocturnal birds of prey is well indicated by the fact that, while fourteen *Falconidæ* are common to the Indian and Australian regions of the Archipelago, only a single Owl has the same range—which is very suggestive of the natural character of these divisions. But few of the genera have a limited range. *Hierax* is strictly confined to the Indian region, and *Spizaetus*, *Polioaetus*, and *Spilornis* only pass beyond it into Celebes. This island exhibits its usual characteristic of a number of peculiar species, having (with the Sula Islands) eleven out of twenty-five which are found in no other island, an unusually large number in this wide-roaming group of birds. It also seems to have some power of conferring on its species a peculiar *facies*, similar to that which I have already noticed as occurring among the *Papilionidæ* (Trans. Linn. Soc. xxv. pp. 1-71). The Celebes varieties of *Pernis cristatus* and *Spizaetus lanceolatus* are coloured exactly alike, with a brown spotted band across the breast; and there is a similar style of coloration in *Spilornis rufipectus* and *S. sulaensis*, as well as in *Baza magnirostris*—all species peculiar to the Celebes group. Truly this island is a mystery hard to be understood—one of Nature's best riddles, which no man can find out!

The classification of the Birds of Prey is so difficult that hardly two authors entirely agree upon it. As regards eastern genera, I think Dr. Jerdon, in his 'Birds of India,' has given the most natural arrangement; and I mainly follow him in the *Falconidæ*. It appears to me very unnatural to break up the large and powerful Eagles of the genera *Circæus*, *Spilornis*, and *Spizaetus* among the Buzzards and Hawks, as is done by Bonaparte and Prof. Schlegel, because we thereby destroy the

distinctive features of those groups. *Haliastur*, however, seems much better placed among the Kites, with which it agrees in all essential characters. Schlegel places *Aquila gurneyi* as a *Spizaetus* among his *Astures*, and thus groups one of the most massive of the Eagles in the same subfamily with the most delicate little Sparrow-Hawks, such as *Accipiter virgatus* and *A. rhodogaster*.

In the Owls the confusion and uncertainty is still greater, as will be seen by the following series of classifications.

Bonaparte (Consp. Av. 1850).

Surniinae = *Surninae* (pt.) and *Buboninae* (G. R. Gray).

Uluinae = *Otus*, *Scops*, *Bubo*, *Syrnium*, *Nyctale* (Kaup);
= *Buboninae*, *Syrniinae*, and *Surninae* (pt.) (G. R. Gray).

Striginae = *Striginae* (G. R. Gray) = *Strix* (Kaup).

Kaup (Contrib. to Orn. 1852*).

Surniinae ..	{	<i>Glaucidium.</i> <i>Nyctale.</i> <i>Athene.</i> <i>Surnia.</i> <i>Ieraglaux.</i>		Striginae ...	{	<i>Scops.</i> <i>Otus.</i> <i>Bubo.</i> <i>Strix.</i> <i>Syrnium.</i>
--------------	---	--	--	---------------	---	---

G. R. Gray (Cat. Gen. B. 1855).

Surninae = *Surninae* (Kaup).

Buboninae = *Scops*, *Bubo* (Kaup).

Syrniinae = *Otus*, *Syrnum* (Kaup).

Striginae = *Strix* (Kaup).

Schlegel (Mus. des Pays-Bas, 1862).

Oti {	<i>Otus.</i> <i>Bubo.</i> <i>Scops.</i>		Striges {	<i>Strix.</i> <i>Uhula</i> = <i>Syrnium</i> , <i>Nyctale</i> , <i>Surnia</i> (Kaup). <i>Noctua</i> = <i>Glaucidium</i> , <i>Athene</i> , <i>Ieraglaux</i> (Kaup).
-------	---	--	-----------	---

Jerdon (Birds of India, 1862).

Striginae = *Striginae* (G. R. Gray) = *Strix* (Kaup).

Syrniinae = *Syrnium* (Kaup).

Asioninae = *Otus* (Kaup).

Buboninae = *Buboninae* (G. R. Gray) = *Scops*, *Bubo* (Kaup).

Surniinae = *Surninae* (Kaup and G. R. Gray).

* Also printed at greater length in the Transactions of the Zoological Society, vol. iv.

Amid these conflicting opinions, and as I have to deal with very few genera, I think it best to arrange the Owls in a simple series, beginning with the small species (*Athene* and *Ephialtes*) and ending with the genus *Strix*.

Order ACCIPITRES, Linn.

Family FALCONIDÆ.

Subfamily FALCONINÆ.

FALCO, Linn.

FALCO PEREGRINUS, Gmel.

Hab. Java (*Schlegel*), Sumatra (*Raffles*), India (*Jerdon*).

The Peregrine Falcon appears to occur rarely in the western islands of the Archipelago.

HYPOTRIORCHIS, Boie.

1. HYPOTRIORCHIS SEVERUS (Horsf.); *F. aldrovandi*, Reinw.; Temm., Pl. Col. 128.

Hab. Macassar, ♂, Salwatty, ♀ (*Wall.*); Java (*Mus. Lugd.*); Philippine Isles, North India (*Jerdon*).

(♂) Bill pale at base, dusky lead-colour at tip; iris, cere, orbits, chin, and feet yellow. (♀) Bill black; cere and orbits pale yellow; feet pale orange-yellow.

This species is found in India and the Philippines, and most probably occurs occasionally in every island in the Archipelago.

2. HYPOTRIORCHIS LUNULATUS (Lath.); *F. frontatus*, Gould, B. Aust. i. pl. 10; *F. lunulatus*, Gould, Handb. B. A. i. p. 29.

Hab. Flores (*Wall.*); Ceram (*Mus. Lugd.*); Australia (*Gould*).

My specimen from Flores exactly agrees with one from South Australia; and Prof. Schlegel says the same of his Ceram specimens.

TINNUNCULUS, Vieill.

TINNUNCULUS MOLUCCENSIS, Homb. & Jacq., Voy. Pôles Sud, pl. i. f. 2; *Falco moluccensis*, Schleg., Mus. P.-B. *Falcones*, p. 28, Valkv. Nederl. Ind. pl. i. fig. 3, 4, 5.

Hab. Celebes, all the Moluccas, Flores, Timor, and Goram (*Wall.*); Borneo (*Mus. Lugd.*); Java (*De Bocarmé*).

Bill lead-colour, tip black; cere and orbits pale yellow; feet bright pale yellow.

Varies considerably in the colour and markings of the tail, some specimens from Celebes and Timor showing an approximation to *T. alaudarius*.

HIERAX, Vigors.

1. *HIERAX CÆRULESCENS* (Linn.); Pl. Col. 97; Schleg., Mus. P.-B. *Falcones*, p. 33.

Hab. Malacca, Sumatra (*Wall.*); Borneo, Java (*Mus. Lugd.*).

Iris dark; bill and feet black. This pretty little bird feeds on small reptiles and insects, and even occasionally devours fruit.

2. *HIERAX SERICEUS* (Kittl., Mém. Ac. Pétersb. 1835, pl. 1); *Falco gironieri*, Eydoux, Voy. Bonite, Ois. pl. 1.

Hab. Philippine Islands (*B. M.*).

Subfamily ACCIPITRINÆ.

ASTUR, Lacép.

(*Lophospiza*, Kaup.)

1. *ASTUR TRIVIRGATUS* (Reinw.); Pl. Col. 303; Schleg., Mus. P.-B. *Astures*, p. 22.

Bill black, base lead-colour; iris and cere orange-yellow; cheeks and orbits olive; feet yellow. Length 15 inches.

Hab. Java (*Wall.*); Borneo, Sumatra (*Mus. Lugd.*); India (*Jerdon*); Philippine Is. (*B. M.*).

2. *ASTUR GRISEICEPS*, Schlegel, Mus. P.-B. *Astures*, p. 23; Wallace, Ibis, 1864, p. 184, pl. 5.

Bill black, base beneath lead-colour; iris golden orange; cere and orbits lead-colour, tinged with yellow; feet lemon-yellow.

Hab. Celebes (Macassar and Menado) (*Wall.*).

(*Leucospiza*, Kaup.)

3. *ASTUR NOVÆ-HOLLANDIÆ* (Gmel.); Gould, B. Austr. i. pl. 15; Schleg., Mus. P.-B. *Astures*, p. 20.

Hab. New Guinea (*Mus. Lugd.*, *S. Müller*); Australia (*Gould*).

ACCIPITER, Briss.

(*Teraspiza*, Kaup.)

1. *ACCIPITER VIRGATUS* (Temm.); Pl. Col. 109, ♂; *Nisus virgatus*, Schleg., Mus. P.-B. *Astures*, p. 32.

Bill black, lead-colour at base; iris and cere yellow; feet pale orange-yellow.

Hab. Malacca, Timor (*Wall.*); Java, Sumatra (*Mus. Lugd.*); India (*Jerdon*).

2. ACCIPITER RHODOGASTER (Schleg.); *Nisus virgatus rhodogaster*, Schleg., *Mus. P.-B. Astures*, p. 32; *N. rhodogaster*, Schleg., *Valkv. Nederl. Ind. pl. xii. fig. 5, 6*.

Bill black; cere dusky yellow, feet yellow; iris bright chrome-yellow.

Hab. Celebes (*Wall.*).

3. ACCIPITER ERYTHRAUCHEN, G. R. Gray, *P. Z. S.* 1860, p. 344; *Nisus erythrauchen*, Schlegel, *Valkv. Nederl. Ind. pl. xiii. fig. 1 (?)*, 3, 4; *Uraspiza erythrauchen*, Kaup, *P. Z. S.* 1867, p. 177.

Hab. East Gilolo, ♂ (*Wall.*); Batchian, ♂, Morty, ♀ (*Mus. Lugd.*).

This species is of the same form, size, and structure as *A. rhodogaster*, and therefore belongs to Kaup's genus *Teraspiza*. There is, in fact, hardly any difference between these birds, except the red collar and more numerous tail-bands of *A. erythrauchen*.

4. ACCIPITER RUBRICOLLIS, Wall., *P. Z. S.* 1863, p. 21, pl. 4; *Nisus cirrhocephalus ceramensis*, Schleg., *Mus. P.-B. Astures*, p. 39; *N. erythrauchen*, Schleg., *Valkv. Nederl. Ind. pl. xiii. fig. 2*; *Uraspiza erythrauchen*, Kaup, *P. Z. S.* 1867, p. 177.

Bill black, lead-colour at base; iris golden-yellow; cere and feet yellow.

Hab. Bouru, Morty Is.? (*Wall.*); Ceram (*Mus. Lugd.*).

This bird has been confounded with *A. erythrauchen* by Prof. Schlegel and Dr. Kaup, on account of the great similarity of colour, and the fact of the smaller specimens being males and the larger ones females. The slender tarsi and feet and very long middle toe show that this bird belongs to the same group as *A. erythrauchen*; but besides the difference of size and of the colour of the under surface, there is an important structural character which will, I think, distinctly separate them. In *A. rubricollis* the tail is somewhat rounded, the outer rectrices

becoming longer as they approach the middle. In *A. erythrauchen*, on the other hand, the *two outer tail-feathers* on each side are *decidedly longer* than those which follow them, agreeing in this respect with *A. rhodogaster*. I may here mention that in correcting the erroneous measurement of the wing originally printed I merely noticed the palpable error of *two inches*; there is, however, a smaller error of a quarter of an inch in the same direction, the actual length of the wings of my type specimen of *A. erythrauchen* being 6.583 in., while those of *A. rubricollis* are 8.25 in. The distinct form of tail will, I presume, be admitted by Dr. Kaup to be proof positive of the specific distinctness of these birds. Schlegel's figures in the work quoted are of small size, but they seem to indicate the difference now pointed out. They also show the same difference of colour as in my specimens, the male (fig. 3) having the breast and belly entirely rufous as well as the smaller female (fig. 1), like my type of *A. erythrauchen*, while the large female (fig. 2) has the breast and belly ashy as in my type of *A. rubricollis*. I am not aware that such a marked sexual difference of colour, as this would be, exists among the Hawks. My specimen from Morty Island is a very young bird, but it seems to belong to this species.

(*Erythrospiza*, Kaup.)

5. ACCIPITER TRINOTATUS, Bp., Consp. Av. i. p. 33; *Nisus trinotatus*, Schleg., Mus. P.-B. *Astures*, p. 45; Valkv. Nederl. Ind. pl. xix. fig. 1-3.

Bill and cere above the nostrils black; cheeks and orbits orange-yellow; feet deep orange-yellow; iris chrome-yellow.

Hab. Celebes (Macassar and Menado) (*Wall.*).

This is one of the most beautiful Hawks in the East, the conspicuous white spots on the tail being displayed during flight.

6. ACCIPITER IOGASTER (S. Müll.); *Falco iogaster*, Müll., Verh. Nederl. Overz. Land- en Volkenk. p. 110; Hombr. & Jacq., Voy. au Pôle Sud, pl. ii.; *Nisus iogaster*, Schleg., Mus. P.-B. *Astures*, p. 43, Valkv. Nederl. Ind. pl. xviii.

Bill black; iris deep orange-yellow; cere, eyelids, and feet orange.

Hab. Ceram, Amboyna (*Wall.*).

7. ACCIPITER MUELLERI, Wall., P. Z. S. 1865, p. 475 ; *Erythrospiza griseogularis* (pt.), Kaup, P. Z. S. 1867, p. 175 ; *Nisus cruentus*, Schleg., Valk. Nederl. Ind. pl. xiv. & xvi.

Bill black, bluish at base ; cere and feet bright yellow.

Hab. Gilolo (*Wall.*).

Dr. Kaup considers this bird to be an old specimen of *A. griseogularis*, which has lost the nape-band. I must therefore point out their differences. *A. muelleri* is of a uniform and very dark slate-colour above, which the other never is ; beneath it is as dark as *A. iogaster*, although banded like *A. griseogularis*, but more distinctly. The bands of the tail are wider apart, the four next the end occupying a space of 2·5 inches, whereas in *A. griseogularis* they occupy scarcely 2 inches. On the throat there is a faint stripe of rufous, the feathers being white at the base, and banded with slate-colour and rufous at the ends ; but perhaps the most important character is that the primaries are of a different form, being very slightly emarginate on the inner web. It appears to me to be much more nearly allied to *A. iogaster* than to *A. griseogularis*, and to be, in fact, the representative of that species in Gilolo.

8. ACCIPITER GRISEOGULARIS (G. R. Gray, P. Z. S. 1860, p. 343) ; *Nisus cruentus*, Schleg., Mus. P.-B. *Astures*, p. 41, Valkv. Nederl. Ind. pl. xiv.—xvi.

Hab. Batchian, Gilolo, Ternate, Morty Is. (*Wall.*).

Bill black, lead-colour at base ; cere yellowish ; feet olive or ochre-yellow.

I possess eight specimens, of both sexes, and in various stages of plumage. In all these the tail only varies in length from 8·25 to 8·75 inches, the wing from 9·5 to 10·5 in. ; the tarsus is in all about 2·7 inches, the bill from the cere to the point ·85 in., and ·5 to ·55 high at the cere. These characters appear to me sufficient to distinguish it from the next species. Dr. Kaup agrees with me that these birds are quite distinct from *A. cruentus*, Gould (P. Z. S. 1842, p. 113), with which Prof. Schlegel places them. All of this form have the 4th and 5th primaries equal and longest, whereas in *A. cruentus* the 5th is decidedly shorter than the 4th, and barely equal to the 3rd.

9. ACCIPITER ÆQUATORIALIS, Wall., P. Z. S. 1865, p. 474; *Erythrospiza griseogularis* (pt.), Kaup, P. Z. S. 1867, p. 174; ? *Astur henicogrammus*, G. R. Gray, P. Z. S. 1860, p. 343, *juv.*

Bill black; cere, eyelids, and feet orange-yellow; iris golden orange-yellow.

Hab. Batchian, Gilolo, Morty Is., Waigiou, Salwatty (*Wall.*).

Four specimens in my collection show this to be a much smaller bird than *A. griseogularis*. The tail only varies from 6 to 7·25 in. and the wing from 7·75 to 9 in., so that the longest is considerably less than the shortest of the other form. The tarsus is 2·2 to 2·25 in., and is therefore always nearly ·5 in. shorter; the bill, measured as before, is ·7 as compared with ·85, and its height ·45 compared with ·5 or ·55. Dr. Kaup says that I established this species "on a middle-aged bird." But I am not aware that the age of adult birds changes the dimensions of the bill and tarsus to this extent; and if it did it would be very extraordinary that a series of twelve specimens could be divided into two groups offering such constant differences as these do. This species sometimes very closely resembles my Timor specimens of *A. torquatus*; but in *A. æquatorialis* the 5th primary is the longest, while in *A. torquatus* it is always much shorter than the 4th. In my original description of this species, the larger series of dimensions given were from a specimen which I have since determined to belong to *A. griseogularis*; so that the contrast in size between the two species is more marked than it then appeared.

(*Uraspiza*, Kaup.)

10. ACCIPITER SULAENSIS (Schleg.); *Nisus sulaensis*, Schleg., Valkv. Nederl. Ind. pl. xvi. fig. 3, 4; *Uraspiza sulaensis*, Kaup, P. Z. S. 1867, p. 176.

Hab. Sula Islands, Ceram? (*Mus. Lugd.*).

11. ACCIPITER SYLVESTRIS, Wall., P. Z. S. 1863, p. 487; *Uraspiza torquata* (pt.), Kaup, P. Z. S. 1867, p. 176.

Hab. Flores (*Wallace*).

Bill black; cere and feet yellow. Third and fourth primaries nearly equal, *the third longest*; tail with eight or nine bands. Length 12·5 to 13·5 in., wing 7 to 8 in., tail 5·5 to 6·25 in.

As Dr. Kaup has placed this species as a synonym of *A. torquatus* without a word of explanation, I have again carefully examined the two, and find them perfectly distinct. The form of the wing alone would distinguish them, since *A. torquatus* has the fourth primary longest and the third considerably shorter. The size is greatly different. Schlegel's measures of *A. torquatus*, converted into English inches, are—wing 8·7 to 9·9 in., tail 6·5 to 7·5 in. Dr. Kaup says *A. torquatus* has ten bands on the tail; Prof. Schlegel gives it fifteen or sixteen! I make about twelve or fourteen. We have therefore marked differences of colour, size, and structure to separate these birds; and I maintain that, under any definition of the word "species," this is one.

12. ACCIPITER TORQUATUS (Temm.); Pl. Col. 43, 93; *Astur cruentus*, Gould, B. Austr. i. pl. 18; *Accipiter cruentus*, Wall., P. Z. S. 1863, p. 484 (*ex* Timor); *Nisus torquatus* et *N. cruentus*, Schlegel, Mus. P.-B. *Astures*, pp. 39, 40.

Hab. Timor, Flores, Bouru (*Wall.*); Java, Sumbawa (*Mus. Lugd.*).

Bill lead-colour, cere greenish-yellow; iris and feet orange-yellow. Length 14·25 to 16·5 inches.

I now agree with Messrs. Kaup and Schlegel in regarding my Timor specimens as *A. torquatus*; but a careful examination has satisfied me that these gentlemen are wrong in retaining *A. cruentus* as a distinct species. My specimens agree exactly with Mr. Gould's figure and description as well as with Temminck's, although the latter is very badly drawn. The Australian Sparrow-Hawk to which Vigors and Horsfield (who are followed by Mr. Gould) erroneously gave the name of *A. torquatus* (Tr. Linn. Soc. xv. p. 182) is really the *Sparvius cirrhocephalus* of Vieillot (N. Dict. H. N. x. p. 328). (*Cf.* Schlegel, Mus. P.-B. *Astures*, p. 38.) These birds are so marvellously alike in colour and markings, that there is no wonder mistakes should have arisen, the figures not always showing the characteristic difference in the length of the middle toe. Both Mr. Gould's and Temminck's figures, however, agree in showing that the tail is rounded, the outer feathers being decidedly shorter than the succeeding one within; whereas in *A. cirrhocephalus* the outer feathers are equal

to those within them and longer than the middle pair. It is very unfortunate that Mr. Gould's type-specimens were allowed to go to America; for I am not aware of a single authentic specimen of *A. cruentus* in this country. Prof. Schlegel (*op. cit.* p. 41) determines this species to be the same as *A. griseogularis*, G. R. Gray, from a single female specimen, said to be from Australia, in the Leyden Museum; but as he gives no indication of how this bird was obtained, or by what means it was determined to be *A. cruentus*, Gould, and as Dr. Kaup agrees with me that the two birds are *widely different*, it seems probable that the Leyden bird is not really from Australia. Dr. Kaup says that *A. cruentus* is "common in New Holland," but does not say if he possesses specimens from that country.

13. ACCIPITER APPROXIMANS (Vig. & Horsf.); Gould, B. Austr. i. pl. 17.

Hab. Lombock (*Wall.*); Timor (*Mus. Lugd.*).

Iris brown; bill dusky, tip black; feet yellowish.

I possess one example which seems to belong to this species, though it is smaller than Australian specimens.

Male. Total length 18 in.; wing $10\frac{1}{3}$ in.; tail $8\frac{1}{2}$ in., with about 14 bands; fourth primary longest, third nearly equal, fifth shorter; tarsus 2·3 in., middle toe 1·5 in.

14. ACCIPITER POLIOCEPHALUS, G. R. Gray, P. Z. S. 1858, p. 170; Sclater, Ibis, 1860, pl. x.; *Nisus poliocephalus*, Schleg., N. T. D. iii. p. 326.

Hab. Aru Is., ♀, Salwatty, ♂, Dorey, ♂ *juv.* (*Wall.*); Ké Is. (*Mus. Lugd.*).

Iris deep olive-brown; cere, orbits, and feet orange-red.

This very distinct species, characteristic of the Papuan Islands, belongs to the genus *Uraspiza* of Kaup. Several specimens have lately been received at Leyden, both from the Aru Islands, where I first discovered it, and from the adjacent group of Ké.

MICRONISUS, G. R. Gray.

(*Tachyspiza*, Kaup.)

MICRONISUS SOLOENSIS (Horsf., Trans. Linn. Soc. xiii. p. 137); *Falco cuculoides*, Temm., Pl. Col. 110, 129; *Nisus soloensis*, Schleg., Mus. P.-B. *Astures*, p. 44.

Hab. New Guinea, Batchian, Sumatra, Malacca (*Wall.*); Java, Celebes, Philippine Is. (*Mus. Lugd.*).

Iris, feet, and cere yellow; gape and orbits yellowish; bill black, lead-colour at the base.

Subfamily AQUILINÆ.

AQUILA, Briss.

AQUILA GURNEYI, G. R. Gray, P.Z.S. 1860, p. 342, pl. 169; *Spizaetus gurneyi*, Schleg., Mus. P.-B. *Astures*, p. 14.

Hab. Batchian, Waigiou (*Wall.*); Aru Is., Ternate, Gilolo (*Mus. Lugd.*).

Bill and cere bluish-white, tip darker; feet white; iris yellow-olive. Total length 33 inches, wing 21 inches. Feeds on reptiles.

NEOPUS, Hodgs.

NEOPUS MALAYENSIS (Reinw.); Pl. Col. 117; *Aquila malayensis*, Schlegel, Mus. P.-B. *Aquilæ*, p. 11.

Hab. Java, Sumatra, Celebes, Ternate (*Mus. Lugd.*); India, Burmah (*Jerdon*).

I never myself met with this rare Eagle.

SPIZAETUS, Vieill.

1. *SPIZAETUS CIRRHATUS* (Gmel.); *Falco limnæetus*, Horsf., Trans. Linn. Soc. xiii. p. 138; *F. caligatus*, Raffles (*tom. cit.*), p. 278; *Astur unicolor*, Temm., Pl. Col. 134; *Falco niveus*, Temm., Pl. Col. 127; *Nisaetus alboniger*, Blyth, Madr. Journ. xxxi. p. 145; *Spizaetus cirrhatus*, Schleg., Mus. P.-B. *Astures*, p. 9, Valkv. Nederl. Ind. p. 53, pl. vi. vii.

Hab. Java, Penang (*Wall.*); Sumatra, Borneo (*Mus. Lugd.*); India (*Jerdon*).

My specimen from Java is nearly black, that from Penang very white beneath.

2. *SPIZAETUS LANCEOLATUS*, Bp., Consp. Av. i. p. 29; *S. cirrhatus* (pt.) Schlegel (*ut suprâ*).

Hab. Celebes (*Wall.*); Sula Is. (*Mus. Lugd.*).

Bill and feet black; iris yellow; feet pale lemon-yellow. Total length 23 inches, wing 13¼ inches.

The smaller size and very marked coloration render it advi-

sable, I think, to keep this as a very distinct species from *S. cirrhatus*.

3. *SPIZAETUS KIENERI*, Gervais, Mag. de Zool. 1835, Ois. pl. 35; Schleg., Mus. P.-B. *Astures*, p. 11.

Hab. Borneo (*Wall.*); Philippines? (*Mus. Lugd.*); India (*Jerdon*).

I obtained a single specimen of this small Eagle in Borneo. It had seized a pigeon, which it was devouring when I shot it. Wing 13 inches, the point 4 inches; tail 7·5 inches; tarsus 2·5 inches; middle toe 1·625 inch, inner toe 1 inch.

4. *SPIZAETUS NANUS*, sp. nov. (Plate I.)

Supra fuscus, subtus albo-rufescens; alis rotundatis brevibus; caudâ trifasciatâ; digitis parvis.

Above brown, the head paler, with a black occipital crest, white-tipped; wings rounded, the fourth and fifth quills longest; tail rather long, smoky-brown, with three blackish bands, one at the extremity and two towards the base; beneath white, tinged with rufous; a dark patch over the eyes and lores. Total length 19 inches; wing 11 inches, the tip 2 inches; tail 8·5 inches; tarsus 2·625 inches; middle toe 1·375 inch, inner toe ·86 inch. The middle toe is feathered nearly to the first joint.

Hab. Borneo.

I possess a single imperfect specimen of this bird, which differs so much in its proportions and size from the other species that I am compelled to consider it distinct.

POLIOAETUS Kaup.

1. *POLIOAETUS ICHTHYAETUS* (Horsf., Trans. Linn. Soc. xiii. p. 136); *Haliaetus ichthyaetus*, Schlegel, Mus. P.-B. *Aquilæ*, p. 17.

Hab. Malacca, Sumatra (*Wall.*); Borneo, Java (*Mus. Lugd.*); Bengal, Burmah (*Jerdon*).

Total length 26 in., wing 17·5 in., middle toe 2 in. (♂). Bill black; cere dusky; feet white.

2. *POLIOAETUS HUMILIS* (Schlegel & Müller, Verh. Ned. Overz. Vög. pl. 6); *Ichthyaetus nanus*, Blyth, J. A. S. B. 1842, p. 202; *Haliaetus humilis*, Schleg., Mus. P.-B. *Aquilæ*, p. 18; *Pandion humilis*, Schleg., Valkv. Nederl. Ind. pl. v. fig. 3.

Hab. Sumatra (*Mus. Lugd.*); Celebes (*Wall.*).

Wing 15·5 in., middle toe 1·75 in. (♀). Base of tail dusky above, whitish beneath; bill and cere dusky lead-colour; feet pale bluish-white; iris light yellow.

CUNCUMA, Hodgs.

CUNCUMA LEUCOGASTER (Gmel); *Ichthyiaetus leucogaster*, Gould, B. Aust. i. pl. 3; *Haliaetus leucogaster*, Schleg., Mus. P.-B. *Aquilæ*, p. 14, Valkv. Nederl. Ind. pl. iv. fig. 1, 2.

Hab. Malacca, Celebes, Gilolo, Batchian, Morty, Aru Is. (*Wall.*); Sumatra, Java, Timor (*Mus. Lugd.*); India, Australia.

Bill black, base and cere lead-colour; feet very pale yellow; iris olive-brown. Length 26 to 29 inches.

PANDION, Savigny.

PANDION LEUCOCEPHALUS, Gould, P. Z. S. 1837, p. 138, B. Austr. i. pl. 6; *P. haliaetus*, Schleg., Mus. P.-B. *Aquilæ*, p. 22.

Hab. New Guinea (*Wall.*); Java, Borneo, Ceram (*Mus. Lugd.*).

It is very doubtful whether this bird should be separated from *P. haliaetus* (*cf.* Ibis, 1867, p. 464).

CIRCAETUS, Vieill.

CIRCAETUS GALLICUS (Gmel.), Schleg., Mus. P.-B., *Buteones*, p. 23.

Hab. Timor, Flores (*Mus. Lugd.*).

SPILORNIS, Gray.

1. SPILORNIS CHEELA (Daudin, Tr. d'Orn. ii. p. 44); Jerdon, B. Ind. i. p. 77.

Hab. Borneo (*Wall.*); India (*Jerdon*).

Total length 23 in., wing 1·4 in., tail 9 in. This bird appears to be a small race of the Indian species.

2. SPILORNIS BACHA (Daudin, Tr. d'Orn. ii. p. 43); *Falco bido*, Horsf., Trans. Linn. Soc. xiii. p. 137; *Circaetus bacha*, Schlegel, Mus. P.-B. *Buteones*, p. 26, Valkv. Nederl. Ind. pl. xxii.

Hab. Java (*Wall.*); Sumatra, Borneo (*Mus. Lugd.*).

Bill black, tip horny; iris and cere yellow; feet orange-yellow. Length 23·5 inches.

3. *SPILORNIS RUFIPLECTUS*, Gould, P. Z. S. 1857, p. 222 ; *Circaetus bacha celebensis*, Schleg., Mus. P.-B. *Buteones*, p. 27 ; *Circaetus rufiplectus*, Schleg., Valkv. Nederl. Ind. p. 72, pl. xxiii. fig. 1-3.

Hab. Celebes (*Wall.*).

Bill black ; iris, cere, and feet yellow.

4. *SPILORNIS SULAENSIS* (Schlegel, Valkv. Nederl. Ind. p. 72, pl. xxiii. fig. 4-6).

Hab. Sula Islands (*Wall.*).

This species is hardly more than a slight local modification of the last.

5. *SPILORNIS HOLOSPILUS* (Vigors, P. Z. S. 1831, p. 96) ; *Circaetus holospilus*, Gray & Mitch., Gen. B. pl. 7 ; Schleg., Mus. P.-B. *Buteones*, p. 28.

Hab. Philippine Is. (*B. M.*)

Subfamily MILVINÆ.

HALIASTUR, Selby.

1. *HALIASTUR INDUS* (Bodd.) ; Pl. Enl. 416 ; *Falco pontice-rianus*, Bp., Consp. i. p. 15 ; *Haliaetus indus*, Schleg., Mus. P.-B. *Aquilæ*, p. 19.

Hab. Malacca, Sumatra, Timor, Flores (*Wall.*) ; Borneo, Philippine Is. (*Mus. Lugd.*) ; India (*Jerdon*).

Total length 20 in., wing 15 to 15.5 in. Bill pale lead-colour, tip yellowish ; iris dull yellow ; cere and feet pale yellow.

2. *HALIASTUR LEUCOSTERNUS*, Gould, P. Z. S. 1837, p. 138, B. Austr. i. pl. 4 ; *Haliaetus indus* (pt.), Schleg., Mus. P.-B. *Aquilæ*, p. 19.

Hab. Celebes, all the Moluccas, and New Guinea (*Wall.*).

A much smaller bird. Total length 17 to 19 in., wing 13.5 to 14 in. Bill bluish-white ; iris olive-brown ; feet pale yellow. Sits on bare trees over water, and on fishing-stakes.

MILVUS, Cuv.

1. *MILVUS AFFINIS*, Gould, P. Z. S. 1837, p. 140, B. Austr. i. pl. 21 ; Schleg., Valkv. Nederl. Ind. t. 20. fig. 1.

Hab. Timor, Macassar (*Wall.*) ; Sumatra ? (*Mus. Lugd.*).

Wing 15·75 in. Iris dusky olive; bill black; cere, gape, and feet yellow.

ELANUS, Savigny.

ELANUS HYPOLEUCUS, Gould, P. Z. S. 1859, p. 127; *E. intermedius*, Schleg., Mus. P.-B. *Milvi*, p. 7.

Hab. Macassar (*Wall.*); North Celebes, Borneo, Java (*Mus. Lugd.*).

Bill black; cere and feet yellow; iris red.

I cannot think that *Elanus intermedius* is distinct from this species, since the spots on the under wing-coverts (which is almost the only point of difference) occur in the immature birds.

PERNIS, Cuvier.

PERNIS CRISTATUS, Cuv.; Schleg., Mus. P.-B. *Pernes*, p. 2, Valkv. Nederl. Ind. pl. xxv. fig. 1-3, pl. xxvi. fig. 1, 2; *Falco ptilorhynchus*, Temm., Pl. Col. 44.

Hab. Sumatra, Bangka, Java (*Mus. Lugd.*); India (*Jerdon*).

Var. *celebensis*, Schleg., Valkv. Nederl. Ind. pl. xxvi. f. 3.

Hab. Celebes (*Mus. Lugd.*).

The variety from Celebes figured by Prof. Schlegel is coloured exactly like *Spizaetus lanceolatus*, which is also peculiar to that island—a most remarkable fact, which indicates either the action of some local peculiarity in determining specialities of colour, or the existence of “mimicry” between these birds. I am sorry Prof. Schlegel has not conferred a specific name on it, since he has done so on local forms less distinctly marked—for instance, *Baza rufa* and *Spilornis sulaensis*.

HENICOPERNIS, G. R. Gray.

HENICOPERNIS LONGICAUDA (Garnot, Voy. Coquille, i. p. 588, pl. 10); *Dædalion longicauda*, Lesson, Tr. d’Orn. i. p. 67; *Pernis* (*Henicopernis*) *longicauda*, G. R. Gray, P. Z. S. 1859, p. 153; Schleg., N. T. D. iii. p. 327.

“Rostro pedibusque luteis, corpore supra nigro brunneaceoque, subtus fulvo-alba longitrorsum flammis nigris, cauda fasciis nigris et albidis intersecta.” (*Lesson*.)

Hab. New Guinea, Mysol, Waigiu (*Wall.*); Aru Is. (*Mus. Lugd.*).

Bill nearly white, tip blackish ; cere bluish-white ; iris orange-yellow ; feet pale lemon-yellow or white. Total length 21·5 in; wing 14 in., tail 11·5 in. (♂).

BAZA, Hodgson.

1. BAZA REINWARDTI, Schleg., Mus. P.-B. *Pernes*, p. 5 ; *Lophotes reinwardti*, Mull. & Schleg., Verh. Ned. Overz. Vög. pl. 5 ; *Baza stenozona*, G. R. Gray, P. Z. S. 1858, p. 169.

Hab. Bouru, Amboyna, Ceram (*Wall.*) : type form.

Aru Is., New Guinea (*Wall.*) ; Salwatty, Ké Is. (*Mus. Lugd.*) ;

B. stenozona, Timor (*Wall.*) : smaller form.

Bill black, the base and cere lead-colour ; feet bluish-white ; iris yellow. The orbits and eyes of these birds are exceedingly large.

I agree with Prof. Schlegel that the birds from the Papuan group named *B. stenozona* by Mr. G. Gray (before he had obtained specimens of *B. reinwardti*) cannot be separated. The Timor birds are perhaps more distinct, as they are about an inch shorter in the wing, and have the concealed white spot on the tertiaries and their coverts larger, as well as the terminal black band on the tail narrower, as it is also in *B. stenozona*.

2. BAZA RUFA, Schlegel, Valkv. Nederl. Ind. p. 74, pl. xxvii. fig. 4, pl. xxviii. fig. 1-3.

Hab. Batchian, ♂ ♀ (*Wall.*) ; Gilolo (*Mus. Lugd.*).

My specimens fully bear out the distinctness of this species. Bill black, base and cere lead-colour ; feet bluish-white ; iris yellow.

3. BAZA MAGNIROSTRIS, Kaup, Isis, 1847, p. 343 ; Schleg., Valkv. Nederl. Ind. pl. xxviii. fig. 4, 5 ; N. T. D. iii. p. 328.

Hab. Celebes, Sula Is. (*Wall.*) ; Borneo ? (*Mus. Lugd.*) ; Philippine Is. ?

Bill lead-colour, black above ; feet white ; iris yellow.

The Bornean specimen in the Leyden Museum probably belongs to the next species.

4. BAZA SUMATRENSIS (Lafresn., Rev. Zool. 1848, p. 210).

Hab. Sumatra (*Wall.*).

Bill black, pale at base beneath ; feet yellowish-white ; iris

yellow. Total length 18·5 in., wing 12·5 in., tail 9 in., crest 2 in. (♀).

A single specimen of this bird was obtained by me in the interior of Eastern Sumatra.

BAZA LOPHOTES, Cuv.

Schlegel says this Indian bird is found at *Malacca*; but I know not on what authority.

Subfamily BUTEONINÆ.

POLIORNIS, Kaup.

1. POLIORNIS LIVENTER (Temminck); Pl. Col. 438; *Buteo liventer*, Schlegel, Mus. P.-B. *Buteones*, p. 21, Valky. Nederl. Ind. pp. 33, 69, pl. xxi. fig. 1.

Hab. Celebes (*Wall.*); Java, Borneo, Timor (*Mus. Lugd.*).

Bill yellow, the tip black; orbits, cere, and feet yellow; iris pale yellow.

2. POLIORNIS POLIOGENYS (Temminck); Pl. Col. 325.

Hab. Morty Is., Sanguir Is. (*Mus. Lugd.*); Philippines (*B. M.*).

CIRCUS, Lacépède.

CIRCUS JARDINII, Gould, P. Z. S. 1837, p. 141, B. Austr. pl. 27; *C. assimilis* (pt.), Schlegel, Mus. P.-B. *Circi*, p. 9.

Hab. Celebes (*Wall.*); Australia (*Gould*).

Iris bright yellow; cere pale yellow; bill dusky; legs yellow.

Prof. Schlegel maintains that *C. assimilis* of Jardine and Selby is specifically identical with *C. jardinii*, Gould; but as Mr. Gould tells us that the two birds are abundant in Australia, but have a *different distribution*, I presume he can hardly be mistaken on this point.

As in my papers on the Birds of the Malay Archipelago, in 'The Ibis,' and in the 'Proceedings of the Zoological Society,' I append a Table showing the distribution of the species among the Islands and groups of Islands; but I have thought it best to keep the *Falconide* and *Strigide* separate, since their different habits lead to some striking differences in their distribution, as previously noticed (page 3).

TABLE showing the distribution of Malayan Falconidæ.

		PALEARCTIC REGION.	INDIAN REGION.								AUSTRALIAN REGION.															
			Asia.		Indo-Malay Islands.				Celebes.	Moluccan group.								Papuan Islands.				Timor group.				
1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27
No.		Europe.	Indian Asia.	Chinese Asia.	Malacca and Singapore.	Sumatra.	Java.	Borneo.	Philippines.	Celebes.	Sula Island.	Bathian.	Kaioa Island and Ternate.	Gilolo.	Morby Island.	Bouru.	Ceram and Amboyna.	Goram and Matabello.	Ké Island.	Aru Islands.	Mysol.	Waigiu.	New Guinea and Salwatty.	Lombok.	Flora.	Timor.
	FALCONIDÆ.																									
	FALCONINÆ.																									
1.	Falco peregrinus ...	I	I			I	I																			
2.	Hypotriorchis severus		I				I		I	I													I			
3.	lunulatus																I								I	
4.	Tinnunculus moluccensis ..						I	I		I	I	I	I	I	I	I	I	I	I						I	I
5.	Hierax cærulescens ..					I	I	I	I																	
6.	sericeus								I																	
	ACCIPITINÆ.																									
7.	Astur trivirgatus ...		I			I	I	I	I																	
8.	griseiceps									I																
9.	{ novæ-hol- landiæ ... }																						I			
10.	Accipiter virgatus		I		I	I	I																			I
11.	rhodogaster									I																
12.	erythrauchen											I		I	I											
13.	rubricollis														I	I	I									
14.	trinotatus									I																
15.	iogaster																I									
16.	muelleri													I												
17.	aquatorialis ..											I		I	I							I	I			
18.	griscogularis											I	I	I	I											
19.	sulaensis										I															
20.	sylvestris																									I
21.	torquatus						I									I									I	I
22.	approximans																							I		I
23.	poliocephalus																		I	I			I			
24.	Micronisus solensis				I	I	I		I	I		I											I			
	AQUILINÆ.																									
25.	Aquila gurneyi											I	I	I						I		I				
26.	Neopus malayensis		I	I	I	I	I			I				I												
27.	Spizaetus cirrhatatus		I		I	I	I	I																		

TABLE (continued).

2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	
FALCONIDÆ.																											
AQUILINÆ.																											
Spizaetus																											
lanceolatus									I	I																	
kieneri		I						I	I																		
nanus								I																			
Polioaetus																											
ichthyaetus		I	I	I	I	I	I																				
humilis							I			I																	
Cuncuma																											
leucogaster		I	I	I	I	I				I		I	I	I	I	I	I	I	I							I	I
Pandion																											
leucocephalus							I	I								I							I				I
Circæus																											
gallicus		I																								I	I
Spilornis																											
cheela		I						I																			
bacha							I	I	I																		
rufipectus										I																	
sulaensis											I																
holospilus								I																			
MILVINÆ.																											
Haliastur																											
indus		I			I	I		I	I																	I	I
leucosternus										I		I	I	I	I	I	I	I	I	I	I	I					
Milvus																											
affinis					I					I																	I
Elanus																											
hypoleucus							I	I		I																	
Pernis																											
cristatus		I			I	I	I			I																	
Henicopernis																											
longicauda																			I	I	I	I					
Baza																											
reinwardti																I	I		I	I				I			I
rufa												I		I													
magnirostris										I	I																
sumatrensis						I		I																			
BUTEONINÆ.																											
Poliornis																											
liventer							I			I																	I
poliogenys									I						I												
Circus																											
jardinii										I																	I
Number of species					10	14	17	14	8	18	5	9	5	10	8	6	8	3	5	6	2	4	9	1	6	10	
Number of species																											
Peculiar species																											

TABLE showing the distribution of Malayan Falconidæ.

		PALEARCTIC REGION.	INDIAN REGION.								AUSTRALIAN REGION.																
1	2		3	Asia.		Indo-Malay Islands.				Cele- bes.	Moluccan group.								Papuan Islands.				Timor group.				
				4	5	6	7	8	9		10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26
No.		Europe.	Indian Asia.	Chinese Asia.	Malacca and Singapore.	Sumatra.	Java.	Borneo.	Philippines.		Sula Island.	Batchian.	Kaioa Island and Ternate.	Gilolo.	Moty Island.	Bouru.	Ceram and Amboyna.	Goram and Matabello.	Ké Island.		Aru Islands.	Mysol.	Waigiu.	New Guinea and Salwatty.	Lombok.	Flores.	Timor.
		FALCONIDÆ.																									
		FALCONINÆ.																									
		Falco																									
1.		peregrinus ...	I	I		I	I																				
2.		Hypotriorchis																									
3.		severus		I				I		I																	
4.		lunulatus															I										I
5.		Tinnunculus																									
6.		moluccensis..						I	I		I	I	I	I	I	I	I	I								I	I
		Hierax																									
		caerulescens ..				I	I	I	I																		
		sericeus								I																	
		ACCIPITRINÆ.																									
		Astur																									
7.		trivirgatus ...		I			I	I	I	I																	
8.		griseiceps								I																	
9.		{ novæ-hol- landiæ ... }																						I			
		Accipiter																									
10.		virgatus		I		I	I	I																			I
11.		rhodogaster								I																	
12.		erythrauchen										I		I	I												
13.		rubricollis														I	I	I									
14.		trinotatus								I																	
15.		iogaster															I										
16.		muelleri													I												
17.		aquatorialis..										I		I	I									I	I		
18.		griseogularis										I	I	I	I												
19.		sulaensis'									I																
20.		sylvestris																									
21.		torquatus						I								I											I
22.		approximans																							I		I
23.		poliocephalus																		I	I			I			
		Micronisus																									
24.		soloensis				I	I	I		I		I													I		
		AQUILINÆ.																									
		Aquila																									
25.		gurneyi										I	I	I						I			I				
		Neopus																									
26.		malayensis ...		I	I	I	I	I		I				I													
		Spizaetus																									
27.		cirrhatu		I		I	I	I	I																		

TABLE (continued).

[illegible]

Family STRIGIDÆ.

ATHENE, Boie.

a. Tarsi stout, feathered to the toes.

1. ATHENE PUNCTULATA (Quoy & Gaim., Voy. Astrolabe, Ois. pl. i. fig. 1); *A. punctulata*, Bp., Consp. Av. i. p. 41; *Noctua punctulata*, Schleg., Mus. P.-B. *Striges*, p. 29.

Hab. Celebes, Macassar (*Wall.*); Menado (*Mus. Lugd.*).

2. ATHENE GUTERUHI (Müller, Verh. Nederl. Eth. p. 79); *Athene guteruhi* Bp., Consp. Av. i. p. 41; *Noctua guteruhi*, Schleg., Mus. P.-B. *Striges*, p. 26.

Hab. Timor (*Wall.*).

Iris and feet yellow; cere dull yellow; bill blue lead-colour; upper mandible black at the gape.

3. ATHENE SCUTELLATA (Raffles, Trans. Linn. Soc. xiii. p. 280); *Strix hirsuta*, Temm., Pl. Col. 289; *Athene malaccensis*, Eyton, Ann. & Mag. N. H. xvi. (1845), p. 228; *Noctua hirsuta*, Schleg., Mus. P.-B. *Striges*, p. 25.

Hab. Malacca (*Wall.*).

This seems rather smaller than the Indian race; and the white spots of the scapulars, said by Schlegel to be "large" in Indian specimens, are entirely absent in my specimen, which may be distinct.

4. ATHENE BORNEENSIS, Bp., Consp. Av. i. p. 41; *Noctua hirsuta borneoensis*, Schleg., Mus. P.-B. *Striges*, p. 25.

Hab. Borneo (*Wall.*).

My specimen has only four bands on the tail, and the terminal one is nearer the end than in the Malacca specimen. The white spots on the scapulars are also very distinct.

5. ATHENE PHILIPPENSIS (Schleg., Mus. P.-B. *Striges*, p. 26).

Hab. Philippine Islands (*Mus. Lugd.*).

6. ATHENE RUFOSTRIGATA, G. R. Gray, P. Z. S. 1860, p. 344.

Hab. East Gilolo (*Wall.*).

Total length 16.5 in.; wing 11.25 in.; tail 6.5 in.; tarsus 2 in.; middle toe 1.5 in, its claw .575, inner claw 1 inch.

Nearly allied to *A. commivens* of Australia, but darker, and with more powerful feet and claws.

7. *ATHENE HYPOGRAMMA*, G. R. Gray, P. Z. S. 1860, p. 344.
Hab. Gilolo, Batchian (*Wall.*).

Bill black; lower mandible at base bluish; cere olive or dull yellow; feet and iris bright yellow. Total length 11·75 to 13·5 in., wing 8 to 9 in. Tarsi densely feathered; toes clothed with stiff hairs; claws long, slender, and very sharp.

8. *ATHENE FLORENSIS*, Wallace, P. Z. S. 1863, p. 488.

Hab. Flores (*Wall.*).

Total length 12·75 in., wing 9·25 in., tail 5·25 in., tarsus and middle toe without claw 2·25 in., bill from gape 1 inch.

9. *ATHENE OCHRACEA* (Schlegel, N. T. D. iii. p. 183).

Hab. Celebes (*Mus. Lugd.*).

10. *ATHENE CASTANOPTERA* (Horsfield, Trans. Linn. Soc. xiii. p. 140); *Strix spadicea*, Reinw., Pl. Col. pl. 98; *Noctua castanoptera*, Schleg., Mus. P.-B. *Striges*, p. 34.

Hab. Java (*Mus. Lugd.*).

“*A. castanea*; capite et pectore brunneo fulvoque fasciatis; ventre crissoque albis; scapularibus marginibusque alarum albo-maculatis; remigibus rectricibusque luteo-rufo fasciatis.” (*Horsfield*). Long. 7·5–8 poll.

11. *ATHENE SYLVATICA*, Bp., Consp. Av. i. p. 40; *Noctua sylvatica*, Schleg., Mus. P.-B. *Striges*, p. 36.

Hab. Sumatra (*Mus. Lugd.*).

12. *ATHENE ARUENSIS* (Schlegel, N. T. D. iii. p. 329).

Hab. Aru Islands (*Mus. Lugd.*).

13. *ATHENE FRANSENI* (Schlegel, N. T. D. iii. p. 256).

Hab. Waigiou (*Mus. Lugd.*).

Professor Schlegel says that this species is allied to the *Athene strenua*, Gould, from Australia.

b. Tarsi slender, sparsely clothed with bristly feathers.

(*Ieraglaux*, Kaup.)

14. *ATHENE SQUAMIPILA*, Bp., Consp. Av. i. p. 41; *Noctua squamipila*, Schleg., Mus. P.-B. *Striges*, p. 27.

Hab. Ceram (*Wall.*).

Total length 12·25 in., wing 8·5 in., tail 5·25 in.

15. *ATHENE HANTU*, Wallace, P. Z. S. 1863, p. 22.

Hab. Bouru (*Wall.*).

Total length 12 in., wing 8·75 in., tail 5 in. Bill whitish horn-colour; iris yellow; feet white.

Allied to *A. squamipila*, Bp., but the feet are more slender, and the other proportions (as well as the colours) differ.

16. *ATHENE VARIEGATA* (Quoy & Gaimard, Voy. Astrolabe, Ois. pl. i. fig. 2); *Athene variegata*, Bp., Consp. Av. i. p. 41; *Ieraglaux variegatus*, Kaup, Trans. Zool. Soc. iv. p. 216.

Hab. New Ireland.

17. *ATHENE JACQUINOTI*, Hombron, Voy. au Pôle Sud, Ois. pl. iii. fig. 1; *Ieraglaux jacquinoti*, Kaup, Trans. Zool. Soc. iv. p. 216.

Hab. Solomon Island (*Mus. Par.*).

18. *ATHENE HUMERALIS*, Hombron & Jacquinot, Voy. au Pôle Sud, Ois. pl. iv. fig. 1; *Ieraglaux humeralis*, Kaup, Trans. Zool. Soc. iv. p. 221.

Hab. New Guinea?

19. *ATHENE THEOMACHA* (Bp., Comptes Rendus, tom. xli. p. 654).

Hab. Triton Bay, New Guinea.

EPHIALTES, Keys. & Bl.

a. Wing rounded, 4th and 5th quills longest, the point of the wing very short.

1. *EPHIALTES LEMPIJI* (Horsfield, Trans. Linn. Soc. xiii. p. 140); *Strix noctula*, Reinw.; Pl. Col. 99; *Scops noctula*, Schleg., Mus. P.-B. *Oti*, p. 24.

Hab. Malacca, Sumatra (*Wall.*); Java, Borneo (*Mus. Lugd.*).

2. *EPHIALTES MANTIS* (Bp., Consp. Av. i. p. 47); *Strix rufescens*, Horsf., Trans. Linn. Soc. xiii. p. 140?

Hab. Malay Peninsula (*Wall.*); Sumatra, Borneo (*Mus. Lugd.*); Java (*Horsfield*)?

Horsfield's description is not recognizable as applied to this species, which is nevertheless very distinct.

b. Wing more pointed, 3rd and 4th quills longest, point of the wing much longer.

3. *EPHIALTES MAGICUS* (Bp., Consp. Av. i. p. 46).

Hab. Ceram (*Wall.*); Amboyna (*Mus. Lugd.*).

Iris yellow; bill dusky; feet pale.

4. *EPHIALTES LEUCOSPILA*, G. R. Gray, P. Z. S. 1860, p. 344; *Scops magicus* (pt.), Schleg., Mus. P.-B. *Oti*, p. 22.

Hab. Batchian, Morty Island, Bouru (*Wall.*); Ternate, Celebes (*Mus. Lugd.*).

Iris yellow; bill horny black; feet pale.

This appears to differ constantly in coloration from the *E. magicus* of Ceram. I therefore keep the two distinct.

5. *EPHIALTES SILVICOLA* (Wallace, P. Z. S. 1863, p. 487).

Hab. Flores (*Wall.*).

Total length 12 inches, wing 8.5 in., tail 4.5 in., bill from gape 1.1 in.

6. *EPHIALTES MENADENSIS* (Quoy & Gaimard, Voy. *Astrolabe*, Ois. pl. ii. fig. 2).

Hab. Celebes (Macassar and Menado), Flores (*Wall.*).

7. *EPHIALTES PENNATUS* (Hodgson, J. A. S. B. vi. p. 369); *Scops sunia*, Hodgs., As. Res. xix. p. 175; Jerdon, B. Ind. i. p. 136; *S. zorca asiaticus*, Schleg., Mus. P.-B. *Oti*, p. 20; *Scops malayanus*, A. Hay?

Hab. India (*Jerdon*); Malacca (*Wall.*).

BUBO, Dum.

1. *BUBO ORIENTALIS* (Horsfield), Trans. Linn. Soc. xiii. p. 140; *Strix sumatrana*, Raffles, tom. cit. p. 279; *S. strepitans*, Temm., Pl. Col. 174, 229.

Hab. Singapore (*Wall.*); Java (*Mus. Lugd.*); Sumatra (*Castl.*).

Var. *minor*, Schleg., Mus. P.-B. *Oti*, p. 13.

Hab. Banka (*Mus. Lugd.*).

2. *BUBO PHILIPPINENSIS*, Kaup, Trans. Zool. Soc. iv. p. 244; Schleg., Mus. P.-B. *Oti*, p. 14.

Hab. Philippine Islands (*B. M.*)

KETUPU, Less.

KETUPU JAVANENSIS, Less., Tr. d'Orn. p. 114; *Strix ceylonensis*, Temm., Pl. Col. 74; *Strix ketupu*, Horsf., Trans. Linn. Soc. xiii. p. 141.

"Ferruginea, supra perfusco varia, subtus nigro lineata, remigibus rectricibusque fuscis ochroleuco fasciatis, capite au-

rito. . . Tarsi nudi reticulati. Digiti robusti." (*Horsfield.*)
Long. 21 poll.

Hab. Malacca, Borneo, Java (*Wall.*).

CICCABA, Wagl.

1. CICCABA LEPTOGRAMMICA (Temmin.) ; Pl. Col. 525 ; *Ulula leptogrammica*, Schleg., Mus. P.-B. *Striges*, p. 20.

Hab. Borneo (*Wall.*).

2. CICCABA MYRTHA, Bp., Consp. Av. i. p. 44 ; *Ulula myrtha*, Schleg., Mus. P.-B. *Striges*, p. 19.

Hab. Sumatra (*Mus. Lugd.*).

3. CICCABA SELOPUTO (*Horsfield*, Trans. Linn. Soc. xiii. p. 140) ; *Strix pagodarum*, Temmin., Pl. Col. 230 ; *Ulula seloputo*, Schleg., Mus. P.-B. *Striges*, p. 22.

"Supra badio-ferruginosa fasciis transversis obsoletioribus, subtus alba fasciis ferruginoso-badiis saturatioribus."
Long. 20 poll. (*Horsfield.*)

Hab. Penang (*Wall.*) ; Java (*Mus. Lugd.*) ; Burmah (*Jerdon*)*.

PHODILUS, Geoff.

PHODILUS BADIUS (*Horsfield*, Trans. Linn. Soc. xiii. p. 139) ; *Jerd.*, B. Ind. i. p. 119 ; Temmin., Pl. Col. 318 ; *Ulula badia*, Schleg., Mus. P.-B. *Striges*, p. 23.

"Badia, nigro punctata, subtus pallidior, capite antice gulaque albidis badio-variis. . . Pedes lanuginosi pallide castanei." (*Horsfield.*) Long. 11 poll.

Hab. Borneo (*Wall.*) ; Sumatra, Java (*Mus. Lugd.*) ; Burmah (*Jerdon*).

STRIX, Linn.

1. STRIX JAVANICA, Wurmbe., *Licht. Mag.* (1787) iv. 2. 10 ; Gmel., S. N. i. p. 295 ; *Horsf.*, Trans. Linn. Soc. xiii. p. 139 ; *S. flammea* (pt.), Schleg., Mus. P.-B., *Striges*, p. 4 ; *S. delicatula* (pt.), Kaup, Trans. Zool. Soc. iv. p. 247 ; *Jerd.*, B. Ind. i. p. 117.

Hab. Java (*Mus. Lugd.*) ; Lomboek (*Wall.*) ; India (*Jerdon*).

2. STRIX ROSENBERGI, Schlegel, N. T. D. iii. p. 181.

Hab. Celebes, Macassar (*Wall.*) ; Menado (*Mus. Lugd.*).

I obtained this fine and powerful species at Macassar in 1856, in bamboo-thickets.

* [Qu. (*Blyth*), *Ibis*, 1866, p. 253?—Ed.]

TABLE showing the distribution of the Malayan Strigidæ.

TRIGIDÆ.	PALEARCTIC REGION.	INDIAN REGION.										AUSTRALIAN REGION.										Islands east of New Guinea.				
		Europe.	Asia.		Indo-Malay Islands.			Celebes.	Moluccan Group.					Papuan Islands.			Timor Group.									
			Indian Asia.	Chinese Asia.	Malacca and Singapore.	Sumatra.	Java.		Borneo.	Philippines.	Sula Island.	Batchian.	Kaioa Island and Ternate.	Gilolo.	Morty Island.	Bouru.	Ceram and Amboyna.	Goram and Matabello.	Ké Island.	Aru Islands.	Mysol.		Waigiot.	New Guinea and Salvatty.	Lombok.	Flores.
thene																										
punctulata									I																	
guteruhi																									I	
scutellata						I																				
borneensis																										
philippensis										I																
rufostrigata																										
hypogramma																										
florensis																										
ochracea																										
castanoptera																										
sylvatica																										
aruensis																										
franseni																										
squamipila																										
hantu																										
variegata																										
jacquinoti																										
humeralis																										
theomacha																										
phialtes																										
lempiji																										
mantis																										
magicus																										
leucospila																										
silvicola																										
menadensis																										
pennatus																										
ubo																										
orientalis																										
philippensis																										
etupu																										
javanensis																										
icaba																										
eptogrammica																										
myrtha																										
seloputo																										
hodilus																										
badius																										
trix																										
javanica																										
rosenbergii																										
ly one species																										
mon to both																										

II.—*Stray Notes on Ornithology in India.*

By ALLAN HUME, C.B.

No. I. *Grus leucogeranus*, Pallas.

OF the four beautiful species of Cranes which permanently, or as seasonal visitants, adorn our Indian plains, the rarest and perhaps the finest is the *Grus leucogeranus*, the Great White or Siberian Crane.

Those who are acquainted with this graceful and exquisitely shaped bird only through the medium of Mr. Gould's figure, or the copy of that figure which Dr. Bree has given, can form no just idea of it.

Large and white, with a good deal of red about the face, they doubtless know it to be; but if they attempt to realize it further, it must be as an awkward gawky creature to whom neither its legs nor head seem properly to pertain. In reality, however, it is the most elegant of birds; and, stand in what position it may, the whole outline of its head, neck, and body presents a series of the most graceful and harmonious curves. The Common Crane of Europe (*Grus cinerea*) with its magnificent pendent train, the delicate Demoiselle (*Anthropoides virgo*) with jet-black waving neck-plumes and silvery ear-tufts, the stately Sarus (*G. antigone*) with its exquisite lavender hue, and brilliant crimson head surmounting its white neck-band—all seem to me to yield the palm to the grace and dazzling whiteness of *G. leucogeranus*.

Few birds are more wary, few have been seldomer procured. Accurate and detailed measurements (such as will be found at the end of this paper), made from numerous fresh specimens, have never yet, I believe, been published; nor, as far as I know, has any correct account been ever given of its habits, food, voice, or changes of plumage.

Sixteen years have now elapsed since I first shot one in Ladakh (in the Himalayahs). This was in October; and the birds were doubtless then on their way to the plains of India. They arrived at a lake near Ley, close to which I was encamped, towards nightfall; and though, after I had fired at them and secured a specimen, they again settled at some distance, they

took their departure next morning before noon without being further molested. At the time I was unfortunately too much of a mere sportsman and too little of a naturalist to take much note of a bird which had nothing gamelike in its plumage, and which proved unfit for the table.

Years passed away, during which (gun in hand though I always was when I could spare the time or could get leave) I never once met with a single specimen of the bird. Soon after the mutiny, however, in 1859, I succeeded in shooting one out of a flock of some five and twenty, which I found in a large "jheel" or shallow rain-water lake, in the north of the Etawah district, about halfway between Agra and Cawnpore.

During the winters of 1865-6 and 1866-7 I have procured and preserved a number of specimens in the same neighbourhood, and have had many opportunities of watching them pretty closely.

They are very probably to be found during the cold weather in suitable localities throughout the plains of the north of India; but the only place where I have observed them, out of the Himalayahs, is in a tract of country lying to the north of the Etawah and south of the Mynpoorie districts, in the middle of the "Duab," or *Mesopotamia*, of the Ganges and Jumna, and, as I said before, about halfway between Agra and Cawnpore.

That they themselves are rare, and that localities suited to their tastes are not numerous, may be inferred from the fact that, apparently, Dr. Jerdon, when he published his work, had never seen one; while, as far as I know, until I last year sent a pair to Madras, there were no specimens in any of our museums. The locality in which, during these last two winters, I have seen and procured, comparatively, so many of these beautiful birds is somewhat peculiar. A broad straggling belt of Dhak (*Butea frondosa*)-jungle, some ten miles in width—at one time doubtless continuous, but now much encroached upon and intersected in many places by cultivated lands, runs down through nearly the whole of the "Duab," marking, I suspect, an ancient river-course. Just where the northern and southern boundaries of the Etawah and Mynpoorie districts lie within this belt, the latter encloses a number of large shallow ponds

or lakes ("jheels" as we here term them) which, covering from two hundred acres to many square miles of country each at the close of the rainy season, are many of them still somewhat imposing sheets of water early in January, and some few of them of considerable extent even as late as the commencement of March. Mohree Southenan, Mamun, Sirsau Nawur, Kurree, Beenan, Soj, Hurrera, Suman, Kishnee, Phurenjhee, are some of the largest of these rain-water lakes, many of which abound with rushes and sedges, and, as the waters gradually dry up or are drawn off for irrigating-purposes, become successively the favourite haunts of the White Crane.

There will always be at any particular time two or three "jheels" that for the moment they particularly affect; and these are as a rule just those that then happen to average about eighteen inches to two feet in depth, and that have a good deal of rush (*Scirpus carinatus* amongst others) somewhere in the shallower parts.

To this tract of country they make their way as early as the 25th of October (and possibly sooner, though this is the earliest date on which I have observed them); and there they remain at least as late as the end of March, or perhaps a week or two longer. During the whole of our cold season they stay in this neighbourhood, and, though growing more and more wary (if possible) each time they are fired at, and disappearing for a day or two from any "jheel" where an attempt has been made to kill or capture them, they never seem to forsake the locality until the change of temperature warns them to retreat to their cool northern homes. Week after week I have noticed, and repeatedly fired at, sometimes even slightly wounded particular birds, which have nevertheless remained about the place their full time; nay, I have twice now killed the young bird early in the season, and the parents, one by one, at intervals of nearly a couple of months.

The Buhelias, a native caste of fowlers (and, I fear I must add, thieves), of whom there are many in the neighbourhood, and who are keen observers of all wild animals, assure me that, as far back as any of them can remember (namely, for at least the last fifty years), parties of the White Crane or, as they call them,

"*Karekhurs*"* have been in the habit of yearly spending their winters in the same locality.

Though occasionally in larger flocks, it is usual to find either a pair of old ones accompanied by a single young one, or small parties of five or six, which then, as far as I can judge, consist exclusively of birds of the second year.

The fully adult birds are, even when they first arrive, of snowy whiteness; and each pair is almost without exception accompanied by a young one, which, when first seen, is of a sandy or buff tint throughout†, and very noticeably smaller than its parents. The males are considerably larger and heavier than the females, the adults of the former weighing up to 19 lbs., but of the latter only—as far as my experience goes—to about 16 lbs. In length, too, the male is sometimes close on 56 inches, with an expanse of 100 inches; but out of eight adult females examined, these dimensions in none exceeded 53 and 92 inches respectively. Of the young birds, however, when they first arrive, the males do not exceed about 10 lbs. in weight, and the females 9 lbs., though generally very fat and well cared for by the parents.

When we first see them, they cannot, I estimate, be more than six months old. The testes and ovaria of adults examined this year, on the 20th of March, were still, if I may use the term, quite dormant; and, allowing for the "passage home," the pairing-season, and incubation, they can scarcely hatch off before the middle of May.

They never appear to have more than one young one with

* Professor Max Müller justly ridicules the excessive length to which what he denominates the "Bow-wow theory" of the origin of words has been pushed by some comparative etymologists; but, in the case of the Cranes, the Hindu names in use, in this portion of northern India, clearly owe their origin to the cries of the several birds. Thus, *Grus cinerea* is called "Koorooch", or "Koorch"; *Anthypoides virgo*, "Kurkurra"; and *G. leucogeranus*, "Karekhur"; each of these names, when pronounced by a native, being an appreciable imitation of the cry of the particular species it serves to designate.

† [Compare Mr. Wolf's clever figure of the young *Grus montigena*, a very closely-allied species, hatched in the Zoological Gardens (P. Z. S. 1861, p. 369, pl. xxxv.).—ED.]

them; but it does not at all follow that they do not lay more than one egg. Our commonest Indian Crane, which usually lays two, and sometimes, though rarely, three eggs, and which has no long or arduous journey to perform, seldom succeeds in rearing more than one young one.

Judging from those of its congeners whose breeding-habits are best known to me—*G. antigone* and *G. australasianus*—as also from what is recorded of the Common* and Demoiselle Cranes (whose nests I have never myself taken), I should suppose that they lay two eggs; but, if this be the case, I can only say that out of more than a hundred pairs that I have seen, from first to last, I never yet saw any with more than one young one.

The watchful care and tender solicitude evinced by the old birds for their only child is most noticeable. They never suffer the young one to stray from their side, and, while they themselves are rarely more than thirty yards apart, and generally much closer, the young, I think, is invariably somewhere between them. If either bird find a particularly promising rush-tuft, it will call the little one to its side, by a faint creaking cry, and watch it eating, every now and then affectionately running its long bill through the young one's feathers. If, as sometimes happens, the young only be shot, the old birds, though rising in the air with many cries, will not leave the place, but for hours after keep circling round and round high out of gun- or even rifle-shot, and for many days afterwards will return apparently disconsolately seeking their lost treasure.

Like the Sarus, these birds pair, I think, for life; at any rate, a pair whose young one was shot last year, and both of whom were subsequently wounded about the legs, so as to make them very recognizable, appeared again this year, accompanied by a young one, and were at once noticed as being our wary friends of the past year by both the native fowlers and myself. I was glad to see they were none the worse for their swollen, crooked, bandy legs; and this year at least they have got safe home, I hope, with their precious charge.

The worst of ornithology is having to kill birds like these.

* [See 'Ibis,' 1859, pp. 191-198.—ED.]

For birds of prey that one shoots so often in the act of tearing some helpless innocent victim to pieces, one has little compunction; but with gentle vegetable-eating birds like these, who seem to love each other so well, and so much, and who for so long evince their sense of the loss of any of the family party, the case is different, and no feeling man can kill any of them, I think, without a pang. As for myself, nothing but the rarity of these birds, the paucity of information in regard to them, and their being *desiderata* in so many important museums, could have induced me to kill so many of them as I have; and I sincerely hope I shall never need to kill another. I do not know how it is; but I have often wished that I could be quite sure that the wholesale murder of these and similar innocent animals merely for scientific purposes, and not for food, was quite right. Intellectually, I have no doubt on the subject; but somehow, when a poor victim is painfully gasping out its harmless life before me, my heart seems to tell me a somewhat different tale.

Throughout their sojourn here, the young remain as closely attached to their parents as when they first arrived; but, doubtless, by the time the party return to their northern homes the young are dismissed, with a blessing, to shift for themselves.

Long before they leave, the rich buff or sandy colour has begun to give place to the white of the adult plumage, and the faces and foreheads, which (as in the Common Crane) are feathered in the young, have begun to grow bare. This, I notice, seems to result from the barbs composing the vanes of the tiny feathers falling off and leaving only the naked hair-like shafts. Even when they leave us, however, there is still a good deal of buff about the head, upper back, lesser and median wing-coverts, longer scapulars, and tertials of the young, while the dingy patch along the front of the tarsus is still well marked.

Each year several small parties of birds are noticeable unaccompanied by any young ones, and never separating into pairs. These, when they first come, still show a few buff feathers, and have a dingy patch on the tarsus; and though before they leave us they become almost as purely white, and

have almost as well-coloured faces and legs as the old ones that are in pairs, they never seem to attain to the full weight of these latter. From these facts I am disposed to infer that these parties, which include individuals of both sexes, consist of birds of the second year, that our birds do not either breed or assume their perfect plumage till just at the close of their second year, and that, like Pigeons and many others, they do not attain their full weight until they have bred once at least.

Unlike the four other species of Crane with which I am acquainted, and which I have above mentioned, *Grus leucogeranus* never seems to resort, during any part of the day or night, to dry plains or fields in which to feed; and, unlike them too, as far as my experience goes, it is exclusively a vegetable-eater. I have never found the slightest traces of insects or reptiles (so common in those of the other species) in any of the twenty-odd stomachs of these White Cranes that I have myself examined.

Day and night they are to be seen, if undisturbed, standing in the shallow water. Asleep, they rest on one leg with the head and neck somehow nestled into the back; or they will stand like marble statues, contemplating the water with curved necks, not a little resembling some white Egret on a gigantic scale; or, again, we see them marching to and fro, slowly and gracefully feeding amongst the low rushes.

Other Cranes, and notably the common one and the Demoiselle, daily pay visits in large numbers to our fields, where they commit great havoc, devouring grain of all descriptions, flower-shoots, and even some kinds of vegetables. The White Crane, however, seeks no such dainties, but finds its frugal food, rush-seeds, bulbs, corms, and even leaves of various aquatic plants, in the cool waters where it spends its whole time.

Without preparations by me for comparison, I hardly like to be too positive on this score; but I am impressed with the idea that the stomach in this species is much less muscular than in any of the others with which I am acquainted. The enormous number of small pebbles that their stomachs contain is remarkable. Out of an old male I took sufficient very nearly to fill an ordinary-sized wine-glass, and that, too, after they had been thoroughly

cleaned and freed from the macerated vegetable matter which clung to them. These pebbles were mostly quartz (amorphous and crystalline), greenstone, and some kind of porphyritic rock; the largest scarcely exceeded in size an ordinary pea, while the majority were not bigger than large pins'-heads. Perhaps, in the hands of some abler mineralogist than myself, these tiny fragments (of which I have a small bag full) may prove to contain as yet unnoticed mineral forms from Central Asia.

I have found similar pebbles in the stomachs of the Grey and Demoiselle Cranes, but never in anything like such numbers as in those of the present species.

When not alarmed, the White Crane's note is what, for so large a bird, may be called a mere chirrup; and even when most alarmed, and circling and soaring wildly round and round, looking down upon the capture of wounded offspring or partner, their cry (a mere repetition of the syllables "*Karekhur*") is very feeble as compared with that of any other of the Cranes (including even *Balearica pavonina*) whose notes I have myself ever heard.

An examination of the trachea of a fine male that I dissected on the 22nd of February, this year (1867), at once explained this feebleness. Instead of a convolution entering and running far back into the sternum, there is merely a somewhat dilated bend just where the windpipe enters the cavity of the body; and it is only after the pipe has divided, which it does symmetrically into two very nearly equal tubes, about 3 inches before entering the lungs, that the rings are at all strongly marked, or that the tube impresses one as at all powerful.

I have already noticed that it is not easy to get at these birds (possibly due in part to a keen sense of hearing accompanying their large ear-orifices); and, as far as my experience goes, there is only one way of shooting them with a shot-gun. With a rifle it is not difficult to get within two-hundred-and-fifty to three-hundred yards of them, at which distance, with a heavy .442 match rifle, one ought to knock them over every time. The melancholy fact, however, is, that habitually one only succeeds in missing them and thoroughly scaring them with a rifle; so nothing remains but to have recourse to a long single eight-

bore with BB green cartridge. This will easily knock them down up to seventy, or, if a shot tells well in the neck, up to eighty yards; but getting within eighty or even a hundred yards of them can only be managed, as a general rule, in one way. You obtain from one of the native fowlers the loan of a trained Buffalo, and enter the water a good quarter of a mile away from the birds, under cover of the quadruped. It has, as usual, a string run tightly through the nostrils and tied together behind the horns. You hold this string where it lies across the cheek with the left hand; your extended left arm is hidden behind the neck; your whole body is bent, so that your head and neck are covered by the Buffalo's shoulders, your body and the greater part of your legs by its body. Only your legs to a little above the knees show close to the hind legs; and as far as possible you always keep the beast up to his belly in water. Thus covered you slowly sidle up towards the Cranes, making the buffalo now put his head up, nose in air, now stop and lower his head to the water, and generally dawdle and meander about with apparently no fixed idea in his head, according to the natural manners and customs of a free and independent buffalo. With a little practice it is easy thus to get within shot. You softly let the cheek-string go, and at once fire below the buffalo's neck. Before your gun is well off, your sporting companion—who has a marked distrust of Europeans and white faces, and has been incessantly endeavouring to kick you throughout your whole promenade—knocks you head over heels, and rushes off towards his dusky owner, bellowing as if he, and not you, were the injured party. This is first-rate sport; but, after trying it once or twice, nearly catching my death of cold, losing a powder-flask, and realizing a stock in trade of bruises enough to last the rest of my natural life, I have preferred sitting quietly on the bank and allowing my native coadjutors to shoot the birds I wanted.

When shot they are worth nothing as food; which, considering their diet here, is not surprising.

In Europe, nowadays, the Common Crane is not thought worth eating, and people wonder at our ancestors esteeming them as they did; but the reason of this is obvious. In former

days, when they were so numerous in Norfolk and other English counties, they used, I apprehend, to arrive at the time of wheat-harvest, and feed exclusively on grain. Grain-fed Cranes are delicious. The Common Cranes that have lately left us, and which, for two months, had been daily gorging themselves in our fields on grain of various kinds, were fat, juicy, tender, and delicately flavoured—in fact, to my mind, with the exception of a Florican (*Otis deliciosa*), or one of our Norfolk Pheasants, about as good birds as can be put on the table, and this although five or six months before, when they first arrived, they were stringy, tough, lean, fishy things, not worth eating, or shooting even, except for plumes.

I ought not to omit to notice that, out of more than twenty specimens of the White Crane that I have procured (between October and the middle of March), none had the tertials at all conspicuously elongated; and in no instance did these, when the wings were closed, exceed the tail-feathers or longest primaries (which usually reach just to the end of the tail) by more than 3 inches. It is possible that at the breeding-season the tertials may be much more developed; but such is not the case with the Sarus, nor, I fancy (to judge from the magnificent trains of plumes with which we here shoot them in the winter), with the Common Crane.

The feathers of the hind head and nape are somewhat lengthened, so as to form a full and broad though short subcrest, very noticeable when a wounded bird is defending itself against dogs or other assailants. It is a brave bird, and fights to the last, striking out powerfully at times with bill, legs, and wings, but most generally defending itself chiefly with its bill, with which it inflicts occasionally almost serious wounds.

Subjoined are descriptions of both old and young, and a Table of dimensions of adults of both sexes.

The legs and feet are a dull pale reddish-pink (dullest in the young), varying to dull red, somewhat brighter on the feet. In all but the old birds, the front of the tarsus, the ridges of the toes, and the bare portion of the tibia in front, are tinged (the first strongly, the others faintly) with dark brown, which, in

some, on the front of the tarsus takes the form of a black mottling: even in the old bird a trace of this is often visible on the front of the tarsus. The claws are rather massive, with the inner edge of the middle toe claw somewhat dilated. They are blackish or dark horny-brown. The scutellation of the bare portion of the tibia, of the tibia-tarsal joint, of the back of the tarsus, and the sides of the feet and toes is reticulate, the scales on the front of the tibia and back of the tarsus being very large and concave, the lines of junction forming a raised network. The front of the tarsus has broad transverse plates, with the upper margins convex. The ridges of the toes have well-marked transverse scuta. The middle and outer toes are connected by a thick reticulate scaled membrane, as far as the first joint (from base). The irides are a bright, very pale yellow; the colour does not vary with age; but in some birds the iris is almost silvery, and in others there is a pinkish tinge.

The bill is umber-brown, very smooth and polished, solid-looking towards the end, and generally with the edges of both mandibles for an inch or an inch-and-a-half from the tip regularly notched, or bluntly toothed at intervals of about $\cdot 125$ in., so as to present the appearance, especially on the upper mandible, of regular though tiny scollops. A row of blunt teeth-like protuberances, pointing backwards, runs down the centre of the palate.

The tongue is hastate, but narrow, sharp-pointed, and membranaceous towards the tip, which is slightly fringed, and thick, fleshy, and cylindrical beneath, towards the base.

The ear-orifices are very large and oval, reminding one of those of the Owls and other birds of prey.

The membrane of the nasal groove is red, much the same colour as the face, and like the latter, dingier in the less-mature birds. In the adult the forehead, lores, and cheeks are naked, of a dull reddish hue, pretty thickly set with short yellowish hairs. In some old birds, the hindermost of these hairs, just where they meet the white feathers, are longer and thicker than elsewhere, and of a brownish hue, thus producing the appearance of a narrow brown line, dividing the snowy feathers from the bare red space.

The plumage, as a whole, is of a most brilliant white; but the primaries and their greater coverts are black, above which the lesser coverts are white, while above these, again, the winglet also is black. The first three or four secondaries have also very often a blackish-brown patch towards the base, on one or both webs, largest on the first, and diminishing on each succeeding feather, and rarely traceable beyond the fourth.

The earliest of the greater coverts of the secondaries have not unfrequently similar patches; but I suspect that these patches are the last lingering traces of the less-perfect plumage.

In the young there is no bare space about the face. The whole head and upper half of the neck are of a somewhat rusty buff. The space destined later to become bare, however, is, in the youngest specimens that I have seen, well defined, its clothing feathers being of a browner and dingier hue than those of the rest of the head, and sitting much closer to the skin. The buff is clearest and deepest on the cheeks and the top and back of the head, and very pale on the chin and throat. The rest of the plumage, when we first see the young birds, may (excepting the primaries and their greater coverts and winglets) be described as buff, in some places brighter and more rufous, in others duller and sandier, with white everywhere beginning to peep through it.

By February, though still much varied by buff, the white predominates in the body-plumage. At this time many of the feathers of the back of the neck and upper back are still pure buff, and many others are more or less tinged with this colour. Many of the longer scapulars, tertials, and hindmost of the secondaries are also buff, while the upper tail-coverts, and most of the lesser and median wing-coverts are tipped with it, and the patch of coverts just above the winglet is usually entirely ferruginous. There is a very faint tinge of buff on some of the feathers of the breast; and many of the thigh-coverts are wholly rusty. By the end of March, when the birds are nine or ten months old, the face has begun to grow bare; and though there is still some buff in the parts above mentioned, it has become markedly less in extent, and feebler in tint.

Table of Dimensions.

	Male.		Female.	
	From	To	From	To
	inches.	inches.	inches.	inches.
Whole length*.....	56	52	53	48
Expanse.....	99·5	90	92	83
Wing.....	26	23	24	22·5
Tail from vent.....	9·5	8	8·25	7·75
Tarsus.....	12	11	11·5	9
Bare portion of tibia....	5·5	5	5·5	4·5
Foot, greatest length....	7·5	7	7	6·875
—, — width.....	8·5	8	8·25	7·75
Middle toe.....	5	4·25	4·5	4·0625
—, its claw.....	·7711	·75	·6875	·5937
Hind toe.....	1·125	1	1	·9375
—, its claw.....	·5	·4375	·4375	·375
Bill.....	7·75	7·5	7·5	6·5
Gape.....	8	7·75	7·625	6·75
Width of gape.....	1·3125	1·125	1·125	1·125
Height of bill.....	·9375	·875	·8437	·8437
Weight.....	19 lb.	16 lb.	16 lb.	12·5 lb.

Agra, June 4th, 1867.

III.—*An Eighth additional List of Birds from Natal.*

By J. H. GURNEY, F.Z.S.

(Plate II.)

THE collection of birds from Natal enumerated in the following list was forwarded to me some time since by my friend Mr. Thomas Ayres; but in consequence of his notes referring to the collection having been accidentally delayed, there has been also a delay in transmitting to 'The Ibis' the list now sent, which is numbered consecutively to those previously communicated †, my

* The dimensions are maxima and minima of eight males and six females, all adults. The female with the tarsus 9 inches was, in this respect, an exceptional bird.

† See 'Ibis,' 1859, p. 234; 1860, p. 203; 1861, p. 128; 1862, pp. 25 and 149; 1863, p. 320; 1864, p. 346; 1865, p. 263.

own remarks being, as before, distinguished from those of Mr. Ayres by brackets and initials.

284. *ERYTHROPUS AMURENSIS* (Radde); *Falco vespertinus*, var. *amurensis*, Radde, Reis. Sib. ii. p. 102, tab. i. fig. 2; Ibis, 1866, p. 119. Eastern Red-footed Hobby. (Plate II.)

Iris hazel; eyelids and bare skin orange; bill dark orange, black at the tip; tarsi and feet dark orange.

Numbers of these pretty Falcons may be seen during the summer months about the open downs in the neighbourhood of Maritzburg, but are not (so far as I know) found there in winter. They hunt in company, sometimes as many as twenty together, well scanning the ground for grasshoppers and other insects, of which their food seems almost entirely to consist. They do not generally remain long on the wing, alighting on any low plant, ant-heap, or on the level ground, in twos and threes. They are not particularly shy; one may get within fifty yards of them without much difficulty. They seem to prefer marshy ground to hunt over.

[The very curious circumstance of the occurrence in South-eastern Africa of this species, which had previously been known only as an inhabitant of Amuria and of Northern China, has been already mentioned in 'The Ibis' (*loc. cit.*), where a brief reference to the specimens sent from Natal by Mr. Ayres was made.

These specimens were three in number, two males and one female,—all, I believe, adult. I have also received from my friend Mr. Andersson an adult male obtained at the Knysna, on the south-eastern coast of the colony of the Cape of Good Hope; and I have had the opportunity of examining a female specimen in the British Museum, procured in South Africa by Mr. Charles Livingstone, and believed to have been obtained near the River Shiré.

The examples from South-east Africa appear to me to be specifically identical with specimens of both sexes in the Norwich Museum obtained in Northern China, consisting of a male and female from Yoon Ying, near Peking, and of two males from the neighbourhood of Talien Bay.

The question whether the Red-footed Hobby of India belongs to the present species, or to its western congener, *Erythropus vespertinus*, is one which, in the absence of Indian specimens, I am unable to decide, and to which I would beg the attention of ornithologists resident in that country*. (Cf. Ibis, 1866, p.119.)

With regard to the distribution of *E. amurensis* in South Africa, I may add that Mr. Andersson informs me that he has obtained one example in Damara Land, where, however, *E. vespertinus* is the common species and is, indeed, so numerous that, in a letter dated February 16, 1866, Mr. Andersson writes to me that it "appears during the wet season in incredible numbers; they then come, not by thousands, but literally by tens of thousands."

Of the specific distinction between *E. amurensis* and *E. vespertinus* I cannot entertain the slightest doubt. The adult male of the former differs from that of the latter in having the under wing-coverts of a pure white, instead of a slaty black, as well as in the slightly darker colouring of its upper parts. The female of *E. amurensis* differs from the female of the other species in the absence of rufous colouring on the head, neck, and under parts, except the thighs and under tail-coverts, which are rufous in it as in the female of *E. vespertinus*, and also excepting a very slight rufous tinge on the sides of the neck and throat and on the under wing-coverts, near the carpal joint. The plumage of all the under parts in the female of *E. amurensis*, excepting that of the throat (which is pure white), the thighs, and the under tail-coverts, is strongly marked with ovate and sagittate spots of dark slaty black on a white ground, which markings assume a transverse form on the under wing-coverts and lower flank-feathers, and produce a general appearance of the under parts considerably resembling the front view of the adult common Hobby (*Hypotriorchis subbuteo*).

The characteristic peculiarities of this species will be apparent on reference to the accompanying plate, from a drawing by Mr. Wolf, of an adult male and female from Natal, and of a nestling

* Since the above was written, Mr. G. R. Gray has been good enough to tell me of a specimen in the British Museum, brought from Nepal, which I agree with him in considering an immature female of *E. amurensis*.

specimen obtained near Talien Bay, in Northern China, by Mr. Swinhoe, in July 1860 (*Ibis*, 1861, pp. 253, 254), which also forms part of the collection of the Norwich Museum.—J. H. G.]

285. *COTYLE CINCTA* (Bodd.). Brown-collared Martin.

Total length 6·5 inches; iris dark hazel.

These birds I have only found inland. Their flight much resembles that of the Rollers, and they make a loud chattering noise whilst flying. The specimen sent I shot in February near Pieter-Maritzburg; it is a heavy, large-sized Swallow, solitary and scarce. The stomach contained good-sized beetles, somewhat broken up.

286. *NECTARINIA CHALYBEIA* (Linn.). Lesser Double-colored Sun-bird.

Male. Total length 5 inches; bill ·93 in.

Female. Total length 4·5 inches; bill ·81 in.

Iris dusky; bill, tarsi, and feet black.

These Sun-birds appear to be most plentiful in July and August, the females being the more numerous. In habits and appearance they resemble *N. afra*. When the peach-trees are in full blossom these Sun-birds may be seen actively engaged in sucking the nectar, and in taking the small insects from the blossoms, the males chasing each other away from their mates with many a rapid evolution, so that it requires a good eye to follow them. They have a very sweet, though not a loud, song; and many a time have I sat under the bush the bird was on, only a few feet above my head, and listened with pleasure to his sweet warblings.

287. *NECTARINIA FAMOSA* (Linn.). Malachite Sun-bird.

Male. Total length 10·25 in. Iris dusky; bill, tarsi, and feet black.

Female. Total length 6 inches.

This species is found more in the inland part of the colony, frequenting the open country, feeding upon the nectar of the various kinds of aloes abounding in some localities, and also on that of some species of lilies which are numerous in many of the valleys. When disturbed, they generally fly right away, unless

their attention is attracted by some flower or by others of their own species.

288. *IRRISOR CYANOMELAS* (Vieill.). Little Blue-and-black Irrisor.

Total length 10·5 inches; iris dusky; bill and feet black.

These Hoopoes are very scarce in Natal, mostly frequenting the inland thorn-bush, though occasionally found near the coast. They are always seen either singly or in pairs (not in families, like *I. erythrorhynchus*), and may be seen creeping about the thorn-trees, picking beetles and other insects from the crevices of the rough bark. The hen bird sent was busily engaged upon a swarm of white ants, which had worked their way up on the surface of a tree.

[The male bird sent exhibits the accidental peculiarity of three white contiguous feathers in the upper covert of the left wing.

Judging from collections sent to this country by Mr. Anderson, I should suppose this species to be much more abundant in Damara Land than in Natal.—J. H. G.]

289. *SAXICOLA BIFASCIATA*, Temm. Bifasciated Wheatear.

Male. Iris dusky; bill, tarsi, and feet black.

These birds I found near the Upper Movi River; but they are more plentiful on the Drankensberg, in the Transvaal Republic, frequenting rocky hills and feeding on insects.

290. *SAXICOLA MONTICOLA* (Vieill.). Mountain-Wheatear.

Iris dusky; bill, tarsi, and feet black.

This bird I shot in the Free State of Transvaal, but I also saw one on the banks of a small stream near the Jugela in Natal. It appears to be solitary in its habits, frequenting the steep banks of rivers, and is very shy and scarce. It moves the tail up and down precisely as the Wagtails do. The stomach of the one I obtained was well filled with insects.

291. *MYRMECOCICHLA FORMICIVORA* (Vieill.). Ant-eating Wheatear.

Female. Bill, tarsi, and feet black.

I first met with this Chat near the Jugela River in the upper district of Natal, and found that it gradually became more plen-

tiful over the Drakensberg, in the Free State and Transvaal Republic.

These birds often rise a short distance in the air with a fluttering flight, but are mostly seen perched on the ant-heaps which abound in this country. They feed on insects.

292. *TURDUS OLIVACEUS*, Linn. Olive Thrush.

Male. Iris light ashy-brown; bill yellow, but with the ridge of the upper mandible dark brown; tarsi and feet pale yellow.

These Thrushes appear to be more numerous during the winter than the summer months. They frequent the bush-range along the coast, and are tolerably plentiful. I sometimes find their claws much worn, as if employed in scratching for their food. They very seldom utter a note, and might well be called the "Silent Thrush."

293. *CAMPEPHAGA MELANOXANTHA* (Licht.). Southern Yellow-shouldered Caterpillar-eater.

The plumage of the male bird is of a metallic greenish-black, with a bright yellow patch on each shoulder. The females are far more numerous than the males, and are generally found in small companies when moving about. In appearance and shape, and also in flight, they much resemble the hen bird of the Emerald Cuckoo [*Chrysococcyx smaragdineus*, Ibis, 1859, p. 246]. This species inhabits the coast-range. I have frequently seen the yellow-shouldered males with the females, and also frequently solitary. Of the entirely black Caterpillar-eater [*Campephaga nigra*, Ibis, 1864, p. 350] I remember to have seen only one specimen, which I forwarded.

[This species much resembles *C. xanthornoides* (Lep.) of Western Africa; but the yellow shoulder-patch of the adult male is smaller and less orange-coloured than that of the western species—a distinction which is well pointed out by Dr. Cabanis (Mus. Hein. i. p. 61), who, however, supposes the present species to be identical with *C. nigra*, in which opinion I do not agree, for the same reasons which I have given for separating this last from the western *C. xanthornoides* (Ibis, 1864, p. 350). The female bird sent by Mr. Ayres appears to agree exactly with the figure of "l'Echenilleur Jaune" given by Le Vaillant

(pl. 164). Dr. Cabanis mentions that the young male also wears this livery*.—J. H. G.]

294. *JUIDA BICOLOR* (Gmel.). White-rumped Grackle.

Male. Iris very light yellow; the upper mandible and the tip of the lower mandible black; the base (which is slightly wattled), the gape, and the tongue yellow.

These birds feed upon *Acari* and other insects. I found them first upon the Bushman's River in Upper Natal, and in increasing numbers (where the locality was favourable) all along the road to Potchefstroom, in the Transvaal, where they are very plentiful. They are gregarious, and feed upon the ground. Their flight is heavy.

295. *ESTRElda CUCULLATA* (Swains.). Hooded Finch.

Iris reddish brown; upper mandible black, under mandible ashy.

These birds were given to me by my friend the late Mr. Richard Norris.

296. *ESTRElda CARMELITA*, Hartlaub, sp. nov. Carmelite Finch.

Male. Iris dusky; bill black, but reddish at the base; tarsi and feet dusky.

Shot by myself at Pieter-Maritzburg, on the banks of the Little Bushman River. There were three or four of them, but I only succeeded in getting the specimen sent. Of their habits I know nothing.

[This little Finch being unknown to Mr. G. R. Gray, who kindly examined it for me, and differing from all the species of the genus *Estrelda* now in the British Museum, I submitted it to Dr. Hartlaub, who has also been so good as to examine it, and who writes to me respecting it as follows, in reply to my request that, if new, he would supply it with a specific name and descriptive diagnosis:—

“If really an adult male bird, it is certainly new, and could be described under the name of *Estrelda carmelita*; but is it not a young bird?

* Since writing the above, I have observed that Mr. Layard recognizes the distinctness of *C. nigra*, in his ‘Birds of South Africa,’ p. 182.

"Supra brunnea, subtus multo pallidior, fulvo-brunnescens, subalaribus sordide albidis; remigibus et rectricibus fuscis, dorsi colore marginatis; rostro et pedibus nigricantibus; rostro parvo, breviusculo, incrassato.

"Long. circa 4"; rostr. $3\frac{1}{2}$ "; al. $2\frac{1}{2}$ "; caud. 1" 7"; tars. $7\frac{1}{2}$."

As it appears to me that, even if the present specimen be a young bird, it in all probability belongs to a new and undefined species, I here include it as such under the specific appellation suggested by Dr. Hartlaub, to whom I am much indebted for the careful diagnosis inserted above.—J. H. G.]

297. *COLIUS CAPENSIS* (Gmel.). White-backed Coly.

Male. Irides greyish white; bill black at the tip, dark crimson at the base, as is the cere also; bare skin round the eye bright scarlet; tarsi and feet dark pink. The sexes appear to be similar in plumage.

These birds are entirely fructivorous. They live in companies, and are by no means so common as *C. striatus* [Ibis, 1860, p. 213]; but their habits are very similar to those of that species, except that they are more shy and take wing more readily. In this Coly the tarsus acts apparently as a heel, being quite rough from constant use in climbing.

298. *TURTUR SENEGALENSIS* (Linn.). Senegal Turtle-Dove.

Male. Iris dark brown.

Given to me by the late Mr. Norris. I am unacquainted with its habits.

299. *PERISTERA LARVATA* (Temm.). White-masked Dove.

Male. Iris double, inner circle dusky, outer pink; eyelids and bare skin pink; bill black; tarsi and feet dark pink.

These Pigeons inhabit the dense bush along the coast of Natal, and are generally seen on the ground, silently and busily seeking for food. They are rather shy birds, and not easy to obtain. The best method of doing so is to sit still in those parts of the bush which they frequent, when they soon begin to move about; otherwise they watch from their thick covert any intruder who approaches, and, when he comes within a few yards, fly up with much bustle and are immediately out of sight. Their note is a low melancholy "coo-coo," rather prolonged and very guttural. There is not much difference in the plumage of the sexes; but

the male is brighter and also larger than the female. It is seldom that more than two or three are found together.

300. *PERISTERA AFRA* (Linn.). Bronze-spotted Dove.

This Dove is usually found in pairs. It inhabits the same localities as the Tambourin-Pigeon [*Peristera tympanistria*, Ibis, 1860, p. 214], which it very much resembles in its habits.

301. *EUPODOTIS AFROIDES*, Smith. White-quilled Bustard.

Male. Irides dusky, tawny on the outer edge; bill ashy at the tip, the ridge dusky, base and gape reddish-pink; tarsi and feet yellow. In the immature birds the irides are hazel.

These fine birds are only to be found in the upper districts of Natal, and not plentifully. In the Free State and Transvaal they are, however, very plentiful. The male birds are very noisy, uttering notes something like "knock-me-down, knock-me-down;" and their apparent wishes are very often acceded to. These Bustards are somewhat wary, and are not always easy of approach in the open country; they, however, prefer land well studded with thorn-bush, and there they are more easily got at. They generally run, on the appearance of danger, with great swiftness, and hide in the long grass. In the morning and evening they are often to be seen sunning themselves, perched on some ant-heap.

Their eggs (which, so far as I know, are always two in number) may be found under some long tuft of grass. They are in appearance much like those of the Stanley Bustard [*Eupodotis caffra*, Ibis, 1860, p. 216], though of course much smaller.

302. *EUPODOTIS CÆRULESCENS* (Vieill.). Blue Bustard.

Female. Iris dusky, with the outer ring tawny; bill dusky, but pale at the base; tarsi and feet yellow.

These Bustards are found more along the banks of streams and valleys than is the case with the preceding; but they are also often found amongst stony hills. They are also less noisy than that species, and, I think, also more difficult to approach, being seldom seen till flushed.

303. *EUPODOTIS SENEGALENSIS* (Vieill.). Senegal Bustard.

Male. Iris dusky, outer ring tawny; bill pink-brown at the tip, edges dusky; tarsi and feet pale.

This Bustard is found in the same localities as the preceding species.

Insects form the principal diet of all these three species of Bustard; but the first named feeds, I think, more upon roots than the two last.

[A specimen of this species is now living in the gardens of the Zoological Society of London.—J. H. G.]

304. *VANELLUS CORONATUS* (Gmel.). Crowned Lapwing.

Female. Iris pale yellow; the basal half of the bill bright crimson, the remainder black; tarsi and feet bright pink.

Insects form the diet of these Plovers, which very much resemble *Vanellus melanopterus* [Ibis, 1860, p. 217] in their habits and appearance. They are not found in the coast districts; and I first met with them under the Drakensberg.

305. *CHENALOPEX ÆGYPTIACUS* (Linn.). Egyptian Goose.

Male and Female. Iris dark yellow; bill pink, with tip, margins, and base black; tarsi and feet pink.

Shot in February. The male weighed $5\frac{1}{2}$ lbs., and the female 4 lbs.

These Geese feed on the land early in the morning and towards evening, and are fond of the seed-ears of grasses, which are abundant at certain seasons. During flight they sometimes utter a loud chattering note. They are mostly found in pairs, but sometimes a whole flock may be met with. This species also occurs in the Transvaal.

306. *ANAS FLAVIROSTRIS*, Smith. Yellow-billed Duck.

Male. Iris hazel; bill bright yellow, but with the ridge and the basal half of the lower mandible black; tarsi and feet dusky, tinged with yellow.

I found a pair of these birds in November in the upper part of the Movi River, Natal; and in the Transvaal they are tolerably plentiful, inhabiting the valleys there in some numbers. They frequently lie so close in the rushes, where the water is about knee-deep, as almost to allow themselves to be trodden on. They build, amongst the high rushes, a substantial nest of dry flags well elevated above the water, and generally choose

such lagoons as will not rise sufficiently to flood the nest, except in the case of a very unusual fall of rain.

307. *RHYNCHASPIS CAPENSIS*, Smith. South-African Shoveller.

Female. Iris dark hazel ; bill ashy, but yellowish underneath ; tarsi and feet brownish yellow.

This species is found in the Transvaal as well as in Natal. I have not noticed it on the coast lagoons, and know nothing of its habits.

Mr. Ayres has also sent the following notes relating to species which have been included in my previous lists of Natal Birds :—

BUBO LACTEUS (Temm.). Sultan Owl. (*Ibis*, 1862, p. 284 ; No. 187 B. *Ibis*, 1863, p. 321.)

This splendid Owl was shot in the interior by Mr. Phillips in the month of June. He found it perched on a nest of the Sociable Weaver-birds*, some five feet in diameter, and at first sight mistook it for a large tiger-cat. Mr. Phillips informs me that, when freshly killed, this Owl weighed fourteen pounds.

CYPSELUS CAFER, Licht. White-rumped Swift. (No. 249, *Ibis*, 1865, p. 264.)

I find these Swifts very numerous in the Transvaal—much more so than in Natal. In the town of Potchefstroom a pair have taken possession of a deserted swallows' nest in the church ; and another pair have located themselves in a similar manner in another part of the town ; but whether this is their usual method of finding suitable places to breed in I cannot say †.

PETROCINCLA RUPESTRIS (Vieill.). South-African Rock-thrush. (No. 79, *Ibis*, 1860, p. 209.)

Male. Irides dusky ; bill black ; gape and mouth yellow ; tarsi and feet dusky. Stomach contained insects and berries. This specimen and two others were together. I did not see them settle on rocks or stones, but they alighted on trees and fed on the nectar of the blossom of a species of aloe. I found

* [*Qu. Philetærus socius?*—J. H. G.]

† [*Vide* Layard, B. S. Afr. p. 51.—ED.]

them on a hill called the Changa, between Pieter-Maritzburg and D'Urban—a very precipitous country, where aloes and low bushes are plentiful.

EUPLECTES XANTHOMELAS, Rüppell. Northern Black-and-yellow Finch. (*E. capensis*, No. 268, Ibis, 1865, p. 269.)

Male. Iris dusky, upper mandible black, under mandible pale, but in some specimens both mandibles are black; tarsi and feet pale, tinged with dusky. The glossy black plumage is only assumed during the summer months; in the winter the plumage is brown, but the yellow is retained.

[I find that the specimens sent to me from Natal appear to be identical with the Abyssinian race described and figured by Dr. Rüppell (Syst. Uebers. Vög. N.-O. Afr. p. 67, tab. 28) under the name here given, and that I was therefore wrong in my former determination (*ut supra*) of this bird. It is readily distinguishable from the more southern race by its smaller size and proportionately feebler bill.—J. H. G.]

SYCOBIUS BICOLOR, Vieill. Solitary Weaver-bird. (No. 233, Ibis, 1864, p. 352.) (Variety.)

Female. Iris bright reddish grey; bill white, rather dusky on the ridge; tarsi and feet pale.

This specimen was shot and presented to me by the late Mr. Norris. It was a single bird of the kind amongst a flock of Weavers, and was killed in September 1864 on the Umgeni-flat near the sea-coast.

[I think this specimen is certainly a variety of the species above named. It is very nearly a complete albino; but there is a tinge of brown on the head and of yellow elsewhere, especially on the wings.—J. H. G.]

GALLINAGO NIGRIPENNIS, Bp. South-African Snipe. (No. 245, Ibis, 1864, p. 355.)

Though not plentiful in Natal, these Snipes are extremely so in the swamps surrounding the town of Potchefstroom, in the Transvaal, where they afford excellent shooting, and also breed during the months of July and August. At this season the cock birds are a great deal on the wing—evidently wooing. They fly about like so many Swallows—rising in the air, and

descending with a rapid sweep and beat of the wings to within a few feet of the ground, then rising again and repeating the movement, at the same time making a curious, loud, vibratory, rushing noise, which I once heard as late as midnight on a still moonlight night. The cock birds on the ground almost incessantly utter a loud "chuck, chuck." The hen birds are pretty silent and quiet, merely rising with the usual sharp "quirk."

I find a great difference in the size of the females, those that are laying being much larger than those that are not.

GALLINULA ANGULATA, Sundeval. Natal Gallinule. (*G. pumila*, No. 58, *Ibis*, 1859, p. 249, pl. vii. ; *Ibis*, 1867, p. 254.)

Male. Iris dark red ; bill greenish-yellow, ridge and frontal shield bright scarlet ; tarsi and feet pale yellowish on the outer surfaces.

This species is numerous in the Transvaal, and breeds in the swamps and valleys and also among the high reeds and rushes on the banks of the Movi River ; but I have not yet succeeded in finding a nest of these birds, owing to the inaccessible character of the boggy ground which they frequent.

IV.—*Ornithological Notes from Amoy*. By ROBERT SWINHOE,
Her Majesty's Consul, F.Z.S. &c.

[Continued from 'The Ibis' for 1867, page 413.]

OUR Consulate is situated on a hill overlooking the fine bay which constitutes the outer harbour of Amoy ; and on the evening of July 17th, the day after a heavy gale from the south-east, I strolled into the verandah as the sun was just setting. A strange large bird was soaring over the flagstaff. It seemed to be black, with a white head and belly, and had a long, forked tail and very long wings. In the grace of its flight it surpassed any Kite, and yet it seemed uncouth and unnatural. There was a Gull-like something about its appearance which bespoke its connexion with the sea. To me the sight was a novelty ; but I guessed what the stranger was, and, mad with excitement, I seized my gun and rushed into the green in front of the house. The bird stood motionless in the air, at such a height

that in size it looked no bigger than a small Kite. Its wings did not quiver, but it closed and expanded its tail, and, with side twists of this natural rudder and slight turns of its wings, it sailed in large easy circles, rising to a greater height and gradually descending on an incline to rise again and sail another circle. Again it would stand in air, and drawing forward its wing-bends to its head, and the quills to the body, with closed tail, dart or shoot obliquely downwards, checking its fall with a sudden expansion of the wings, to sail in the same calm manner again *. It showed, however, no inclination to lower itself from its exalted position; and for fear of losing it I tried a long shot with loose No. 4. Its wing was touched and it looked troubled and shook itself, but soon again recovered. I tried the other barrel, but without the least effect. In despair I rushed back to the house, rammed home a green cartridge, and speedily returned to my position at the foot of the flagstaff. The bird seemed to be making off; but, to my delight, it presently took a long sweep, and, as if fearless of my humble efforts, sailed over the house. Now or never was my chance, I felt, and with a forlorn hope I took steady aim and fired. The bird staggered and fell; its right wing was broken, but its pluck not; it flapped the left vehemently, and bit frantically at the wound on the right, which caused the extremity of that wing to dangle useless, notwithstanding the efforts of the fractured stump to keep it sustained. Still fighting, still struggling, the unfortunate wanderer reeled downwards in narrow circles, amidst the shouts of the Chinese in view, till it reached the earth with a thump. We rushed to pick it up, and found that it had vomited two fish, each about four inches long, one of them well known to the servants as occurring in the market. The bird lay on its side, and courageously showed fight with beak and claws. I had it placed on the tiled floor of the verandah; it attempted to walk, but only tumbled about. The smooth surface did not suit its short toes and pointed claws. It dropped on one side, keeping one leg suspended, which quivered incessantly from nervousness.

* I have seen Kites perform this darting movement, but much more clumsily.

As I had supposed, the stranger proved to be a Frigate-bird, but from its small size and bluish bill certainly not *Tachypetes aquilus* (L.). Its eyes were uniform blackish or deep hazel-brown, bright, but not over sharp. The stupid look of the bill detracted from the knowingness of the eye. It snapped with a double clatter of the mandibles, like an Albatros, and uttered, when touched, a continued hoarse and angry cry. It flapped about to the danger of destroying its quills against the hard tiles; and was wild, cross, and bad-tempered. I put it out of pain, and was surprised to find how immediately it died on compressing the ribs against the heart, which is by no means the case with most sea-birds.

Bill from forehead 3·4 in., from gape to tip of lower mandible 4 inches; total length 28 inches. Tail of twelve feathers 12·75 in., depth of fork 5·7. Wing 20·5, its tip when closed all but reaching that of the tail. Expanse 69 inches. The bare throat-skin extends from the feathers on the base of the lower mandible down the breast 2·75 in. Breadth between *crura* of lower mandible at base ·583 in. Breadth of bill across forehead 1·1 in. Depth at base ·8. The occipital angle of the eye is just behind the line of the rictus, its axis inclined about 25° towards the mouth, its diameter nearly ·5 in. Bill french-grey, with whitish yellow-tinged *dertrum* tipped with blackish. The tongue is a short irregular triangle, about ·5 in. long by ·32, blunt at the tip. Inside of mouth bluish-grey. The rugose throat-skin bluish-grey, tinged with a little pink. Eyelids and bare skin just above them light bluish-grey tinged with yellow. Ear well behind the eye, a little above the level of the rictus, about ·22 in. wide.

Head, neck, and upper part of the breast white, blotched with burnt-sienna red, more deeply on the latter. A band from the axillaries across the belly, and extending behind the legs, pure white. Mantle brown, sprinkled with blackish feathers, showing immaturity. Lesser wing-coverts and a few tertials brown, blackish in the middle, and broadly edged with white in some, and whity-brown in others. The down on the basal half of the feathers white. General plumage deep brownish-black. Feet light flesh-colour, tinged along the toes with grey. Middle claw

long and falcated, inwardly convex and broadly pectinated; claws flesh-colour, with more or less blackish-brown. Interdigital webs pale yellowish flesh-colour, more than half indented, that between the inner and hind toes being little more than a border.

Arm of wing 7 inches, forearm 8·8 in. From shoulder-joint to shoulder-joint across the back 4·65. From humero-ulnar joint across the back to the same joint of the other side 6·75 in. First toe 1·5 in., its claw ·2 in. (measured to the end of the sole-pads); middle toe 1·85 in., claw ·6 in.; inner toe 1·2 in., its claw ·25; hind toe ·75, its claw ·27 in.

The plumage was covered with numerous lice of at least three species. There were two diminutive species, one white and the other red, very lively, and, I think, *Ricini*. The largest was a thin black species (about ·2 in. long) of, I think, *Lipeurus*.

Dissection.—Eggs undeveloped and minute in ovary. Trachea narrow with short bronchi. The former terminates in a peak in front, a semicircular, narrow, fleshy cushion forming the edge on either side, from which each bronchus springs, and from which it is separated by a membrane. Rings of bronchi much narrower than those of trachea. Sterno-tracheal muscles given off from each side of trachea about ·25 in. above the before-mentioned cushion. Rings of trachea broad and irregular. Peak behind inclining up to join peak in front. Bronchi merely membrane behind. Right lobe of liver rather larger than left, and about ·25 in. longer. Gall-bladder ·7 by ·3 in. under right lobe of liver to the upper right of gizzard. On the upper side of the membrane that separates the upper air-reservoir of the left lungs from the lower, occurred numerous small *Ascarides*, as also on the downward side of the same membrane; the longest *Ascaris* about 1 inch in length by ·05 in. at the most, pointed at both ends, and pure ochreous. I took them off the membrane alive; but they soon died. Proventriculus 1·5 in. long, gradually expanding from the broad œsophagus till it joins the gizzard. Gizzard of an irregular heart-shape, 1·1 in. at greatest breadth, and 1·5 in. long, flabby, with small lateral tendons. Pylorus on right side of gizzard, about ·4 in. from its junction with proventriculus. Intestine about 28 inches long, from ·2 to ·45 in. thick, and banded with dark ruddy veins. Stomach lined with an adnate,

slimy, soft epithelium, which runs also into the proventriculus—or rather a true epithelium is absent. It contained half-digested remains of fish in the stomach, as well as throughout the proventriculus and the greater part of œsophagus, many *Ascarides* like small *Lumbrici*, about 1·5 inch long by ·1 in. at thickest, pointed at both ends, whity-brown, marked in some with lines of deep brown, probably the food showing through the skin. They were very lively, and lived an entire day and night in cold water. When placed on the table they moved by drawing head and tail together, and so making small leaps. They seemed to have no retractile power. I have sent my specimens of both these worms to Dr. Cobbold, and I trust therefore that their names may be added to this paper*.

From its small size this bird would appear to be *Tachypetes minor* (Gm.), and from the bluish bill, as figured in the plate representing the species in the ‘Genera of Birds,’ I should think it very probable that ours is the same. That plate, however, gives the tip of the bill and the throat yellow, and a bare skin round the eye. These may all be assumed by the species in its progress to maturity. I suppose the example there figured is not quite mature, as it possesses the white ventral band. As regards the drawing, I would notice that the eye is not correct. The eye of this species, like that of *Diomedea*, shows no distinct pupil. Authors, I see, compare it to that of an Eagle, but, I suppose, on the grounds of fancy and sentiment. The only description of the Lesser Frigate-bird that I have at hand is that contained in Bonaparte’s ‘Conspectus’ (vol. ii. p. 109), wherein it is curtly diagnosed as coming from Australia, and being like *T. aquilus* “*sed valde minor*,”—from which it would appear that Bonaparte had never seen the smaller species; for he speaks of the larger one as “*nigro-coracinus; rostro, gula, pedibusque rubris*.” The adult he further characterizes as “*unicolor, splendens; plumis capitis*

* [In answer to our application, Dr. Cobbold has been kind enough to write:—“Mr. Swinhoe sends me two kinds of Nematode parasites. Those from the œsophagus are examples of *Ascaris spiculigera*, a common Entozoon, already found by Natterer in a Frigate-bird taken off the coast of Brazil; but the others are apparently referable to a new species of *Strongylus*. At present I have not had time to examine them minutely.”—Ed.]

dorsique lanceolatis”; and the young as “*albo vel rufo varius; plumis capitis dorsique minus elongatis.*” We must hence infer that the adult of both sexes is whole-coloured—that is to say, without white head or belly-band, and that both have the beak, throat, and feet red. Dr. Jerdon tells us (B. Ind. iii. p. 853) of the large species having been once shot off the coast of Malabar. His diagnosis looks as if were copied in part from Bonaparte. It runs, “adult, entirely glossy black; young bird with the head, neck, and lower abdomen white, the rest of the body glossy black. Length 37 inches; wing 26; tail $15\frac{1}{2}$. Bill and feet red.”

Mr. Salvin, in his notes on the Sea-birds of British Honduras (Ibis, 1864, p. 375), tells us that he “shot four old [Frigate-] birds; two adult males in dark metallic chocolate-brown plumage, and two with white underneath, the adult females; no white-headed immature birds were to be seen.”

Edward Burton, in a memoir on *Pelecanus aquilus* in the Linnean ‘Transactions’ (vol. xiii. pp. 1–11), informs us that its “predominating colour is black; but the back of the male is inclined to a glossy-green, similar to that of the common black cock. The plumage of the female is more dusky; and she differs from the male in having the abdomen and nearly the whole of the head white. The eye and parts immediately surrounding it are black. The beak is of a dirty-yellowish white. The feet of the male are black; those of the female, of a bluish white.

If the same species is meant in these extracts, here is a glorious amount of irreconcilable confusion! The Amoy specimen was a female, and must have been a bird of the preceding year, though it bore unmistakeable signs of immaturity. It is not unlikely that the females of this group, as of many others among birds, wear this immature plumage much longer than the males, but eventually acquire the adult plumage which one hastily considers peculiar to the males. I wonder if Burton identified his sexes by dissection; for he states that the male bird sits, and that none but males were taken on shore at Ascension Island, while the females were shot at sea—all his females having white heads. Mr. Salvin says that in the breeding-places he explored off British Honduras he saw no white-headed birds, which he

sets down as immature; all that he saw were whole-coloured, the females having the white belly-band. There may, however, be little use in introducing this question, as it may have been satisfactorily settled long ago, which, through want of references I have no means of ascertaining. About the stated differences in the colour of the bill and feet of this species I am troubled. Burton's adult birds in the breeding-season had dirty yellowish-white bills with red gular pouches, and dark feet. Now it is impossible to suppose that the bill and feet at any other season of the year could change to red. Two distinct species must be indicated by these very distinct characters. It is likely enough that this has already been noted, and that one of these forms constitutes the new species of Mr. Gould, to which Bonaparte in his 'Conspectus' also refers*. Mr. Salvin does not state the colour of the bill and legs of his Honduras species; but is it possible that the same species could be described by one man as "*nigro coracinus, splendens*," and by another as "dark metallic chocolate-brown"? The Honduras bird may be yet another species! With the opportunities that Mr. Salvin had, I wonder that he did not give us a study of this wonderful genus, which has been the subject of so many fables, especially in France. These remarks, however, may be behind date. I could add, in conclusion, that there is a great difference in the position of the wings in the live bird from what obtains in skins and drawings. In skins the *humerus* is generally removed, and, the *ulna* being drawn inwards, the carpal joint is thrown forwards towards the head, and the wings lie flat to the sides, their tips not extending to the middle of the tail. All the drawings that I have seen reproduce this unnatural appearance. In our live bird the elbow stood well out, giving considerable convexity to the wing, the carpal joint was not carried beyond the shoulder, and the tips of the wing lay crossed over the tail and extended to within one third of an inch of the tail-tip.

New to the Amoy list, on the 13th April I had brought to me a *Limosa melanura* in partial summer plumage. Its bill was slightly rugose near the tip; claw of the middle toe long, curved,

* [It appears that Mr. Gould has not yet felt sufficient confidence in this supposed third species of Frigate-bird to describe it.—ED.]

and pectinated. At the end of May I bought from a Chinese a male *Eudynamis orientalis*, the first I have seen procured here; I put it into my aviary, but it did not live many days. It had the habit of flying about, up and down, and round and round, in a light and graceful manner, like a Drongo. A few immature pen-like quills still remained on the wings. On dissection I found it to be a male.

June 11.—I examined some nearly fledged young of *Halcyon smyrnensis* (L.). Eyelid pale reddish-ochre or buff. Iris deep umber-brown. Bill deep brown over a reddish-ochre ground, which shows through, especially on the under mandible; tip fine orange for about .2 in. Inside of mouth light orange-ochre. Legs and toes deep madder-brown, orange-buff on the back of the tarsal joint, the underside of the tarsi and the soles of the toes more reddish and sullied. Claws blackish-brown, with pale tips. Head of deeper hue than in the adult. White feathers of the breast narrowly margined with black. I have reared two or three of these noisy fellows on a diet of raw meat, and have still one showy specimen in my aviary.

I mentioned in one of my former papers (Ibis, 1866, p. 298) that a *Porphyrio* had occurred at Amoy, and was living in the aviary of a friend while I was in Formosa. One was brought to me on the 29th July alive. Such a noble stately fellow, and so tame! He stalks about, knee-deep, in my fountain, frequently twitching up his tail, and scratching, with his head immersed in the water, for food. He snatches at a piece of flesh or an insect, and, holding it in one foot, while he stands on the other, he devours it piecemeal. The Chinese bird would appear to be only a race of the *P. smaragdinus*, Temm., of the Indian Archipelago, differing in having its belly purple instead of grey, and in having a black abdomen. I will name it provisionally

PORPHYRIO CÆLESTIS, sp. nov.

Its measurements I have not taken satisfactorily, and will therefore omit. The black of its upper parts has a show of purple in some lights, of olive in others. Its head is dusky grey. Its hindneck, sides of neck, flanks, and belly fine blue-purple. Throat, down to breast, turquoise-blue, a patch of which

also occurs near the shoulder-joint. Rump white. Bill, casque, and legs brick-red, more or less marked with brown on bill. The eyes are crimson and projecting.

The bird is unknown to the Amoy Chinese that I have questioned about it. It is probably to this species that the Abbé David, at Peking, refers, in a letter to me, as being found to the south-west of the capital. He writes "on me parle d'un gallinacé tout bleu à queue courte."

I have never heard of any of the *Columbæ* eating insects. It may therefore also be new to others to know that the other day, on throwing a large live cockroach into my aviary, two Manilla Doves (*Calœnas cruenta*) attacked it at once, pulled it to pieces, ate many bits of it, and probably would have eaten the whole, but that other birds robbed them of the remainder.

I received a letter from the Abbé David on the 25th June, enclosing two bird-skins. The Abbé writes:—"Je profite de l'obligeance de M. Conolly pour vous envoyer deux peaux d'oiseaux; c'est tout ce que j'ai maintenant de disponible. Votre *Pomatorhinus stridulus* est fort abondant et sédentaire dans nos montagnes, de même l'autre oiseau que je vous envoie et dont je vous prierais de me faire savoir le nom. Ce dernier habite les mêmes localités que le *Pomatorhinus* et en a les mêmes habitudes."

These two birds were quite distinct from anything Chinese that I had seen before, and I wrote to the worthy priest for permission to describe them. M. David's permission, dated Peking, 31 July, 1867, I received on the 4th Sept. The so-called *Pomatorhinus* belongs, in my opinion, to the *Timaliine*. At a first glance you might pronounce it to be a plain-coloured *Pomatorhinus*; but on second inspection you notice its feathered and bristled nostrils. Hence what should it be a member of but a new genus? which I would propose to style

PTERORHINUS, gen. nov.

Bill curved, compressed at culmen and expanding at sides, narrowing very gradually to the tip, which is obtuse and without notch. *Nostrils* thickly covered with feathers and vibrissæ. *Wings* short, rounded; fifth, sixth, and seventh quills longest. *Tail* of twelve feathers, moderately long, and the four outer

rectrices graduated. *Legs* somewhat slender for the Timaliine group, with moderate feet and claws: tarse-scale divided.

The type of this genus, in the shape of the bill, approaches *Pomatorhinus*; in the clothing of its nostrils it is an exaggerated *Garrulax*; in the sober uniformity of its coloration it resembles *Malacocercus*, and in the comparative slenderness of its legs and feet exceeds *Leucodipterum*. I should like to name the species, in honour of its discoverer,

PTERORHINUS DAVIDI, sp. nov.

General plumage umber-brown; the downy or basal half of each feather bluish-grey. A short superciliary mark of brownish-white passes over the eye, and some of the frontal feathers are edged with the same colour. Cheeks and under neck pale; tibia, abdomen, and under tail-coverts deep umber; a ring on the tarsal edge of tibial feathers whitish. Chin black, giving out divergent black *vibrissæ*; near the symphysis of the lower mandible a few small whitish feathers occur; and below the black chin-spot the feathers of the throat are inclined to whitish-grey. Quills brown, edged with greyish-white. Tail umber-brown on the two middle feathers, deepening towards their tips, where faint cross bars appear; the other rectrices blackish-brown. Bill (in the dried specimen) pale ochreous-yellow, brownish on the upper mandible except at its edges. Legs and claws (of the same specimen) liver-brown. On the ticket was inscribed in pencil "12 April, 1867; Pekin. ♀ adult. Iris clear brown."

Length of skin 9·2 in.; wing 3·3 in.; tail 4·7 in. The first wing-quill falls short of the longest by 1·25, the second by ·7, the third by ·3 in. Outer tail-feather 1·4 in. shorter than the longest. Tarse 1·2 in.

The second novelty from Pekin belongs to the *Drymacinae*, and seems to occupy a place close to *Suya*, from which, however, it differs in having *twelve* rectrices instead of *ten*. I do not know to what restricted genus to refer it, and will therefore, for the present, place it under *Drymaca* in its broad sense. The occurrence of one of this group so far north is so worthy of note that I propose to name this bird

DRYMÆCA (?) *PEKINENSIS*, sp. nov.

Nostrils apart, semilunate, partly covered by a rounded scale. Bill moderately strong, notched near the tip, with strong bristles on either side, and slighter curved ones on the chin and throat. Wings small, rounded, and graduated. Tail long, of twelve feathers, the outermost somewhat short, the rest much less graduated. Tarse-scale divided; feet moderate, with short pointed claws, hind one largest and most hooked.

Upper parts olive-grey; feathers on crown, back, and rump broadly marked in the middle with black, and tinged with rusty-maroon; those of sides of neck grey, spotted with rusty. Supercilium pale; cheeks brownish, with an indistinct black moustache-streak below the ear-patch. Quills light brown, edged with whitish, the two middle tail-feathers olive-grey, brown near the shafts, and edged with whitish; rest of rectrices blackish brown, margined with olive-grey, edged externally with white, the outermost tail-feather being white at the tip and on its apical outer edge, and the shafts of all white beneath. Under parts dingy white, streaked on the sides of breast and flanks with rusty-maroon, the same colour washing the sides of the abdomen and the tibiae, and slightly tinging the belly and vent. Axillaries rusty-white; the underwing washed with the same.

Bill (of dried skin) light brown, light ochreous on the basal half of lower mandible. Legs light brownish-ochre, browner on feet and claws. Label-ticket:—"7th April, 1867; Pekin. ♀. Iris yellowish-grey."

Length of skin 6·5 in.; wing 2·4; fifth, sixth, and seventh quills equal and longest; first quill ·9, second ·4, third ·2, and fourth ·08 shorter than the longest. Tail narrow, 3·3 in., outer feather ·75 in. shorter than the longest. Tarse ·7 in.

In the third week of August my hunter returned from the Tingchow mountains—the high "Black-Tea range"—about 120 miles north-east from Amoy. I was delighted to find in his collection a genuine *Dendrocitta sinensis*, which he shot on the road, returning. Wing 5·7; tail 6·75. This bird, by the downiness of its throat and abdominal feathers, is evidently only a bird of the year. Its tail has not acquired the adult length and form, and the rich black and grey of the head have not made

their appearance. We cannot, therefore, minutely compare, it is true, this *D. sinensis* with the Formosan bird. One difference, however, is conspicuous. The white wing-spot is small, and only visible on the third to the eighth quills, while in the Formosan bird it is *much* larger, and extends from the third to the tenth quills. According to Mr. Blyth, the Himalayan form has even more white on the wing than the Formosan (Ibis, 1865, p. 45), and the latter in this respect is therefore intermediate between the Chinese and Indian,—which does not accord with their relative geographical habitats. I have unfortunately no immature specimens from Formosa by me; but I feel pretty sure that the white wing-spot does not enlarge with maturity.

The hunter had also a male *Dicaeum cruentatum*, a not fully fledged specimen of *Ixus chrysorrhoides* (showing the crissum chestnut-buff instead of crimson), and three females and one male of *Brachypternus fokiensis* (P. Z. S. 1863, p. 87). One female of the last has the head and neck a pale reddish cream-colour, the feathers marked with blackish-brown and chestnut in the middle. This appears to be the fresh-moulted condition of those parts, which soon get dingy and stained darker.

There were some adult and some immature examples of our common Titmouse, which in form oscillates between *Parus cinereus* and *P. minor*. It is objectionable to require a sentence each time a bird is mentioned: for convenience, then, I would propose to call it

PARUS COMMIXTUS.

The chief difference between *P. cinereus* of the Straits and *P. minor* of Japan appears to be the colour of the back. The back of *P. commixtus*, in the adult, shows a compromise between the two, sometimes leaning a little more to one side than to the other. My object in bringing forward the species now is to note the great difference of the immature form, of which good specimens have reached me from Tingchow. In this the cheeks and under parts are light yellow, instead of white, showing a direct affinity to the typical *P. major* of Europe. The stripe, extending from the chin to the middle only of the belly, is light

dull greenish-black. The crown of the head is of the same dull colour. The nuchal spot, the tips to the greater wing-coverts, and the edgings to the tertiaries are washed with greenish-yellow. The mantle is dull olive-green, as also are the margins of the secondaries. The rest of the plumage is lighter and duller than in the adult. To show that I am not wrong in regarding this as the young of *P. commixtus*, I have a specimen acquiring the adult plumage, in which the yellow of the under parts is giving place to the greyish-white. The glossy blue-black breast-band and mesial stripe are beginning to show. The bluish-grey of the rump, and the livelier green of the back, together with other distinguishing marks, are showing through, and confirm the identity. The young birds referred to were shot while in company with the adult of *P. commixtus*. It is only for convenience, as I have said before, that I propose to admit *P. commixtus* as a species. When I get a series from various points in China and Japan, as I hope to do, I shall probably have something more to say on the subject.

Perhaps the most interesting of all I received from Tingchow was a species of Long-tailed Titmouse of the semitropical form *Ægithaliscus*. Most of the specimens were unfortunately in moult and imperfect.

ÆGITHALISCUS ANOPHRYS, sp. nov.

Closely allied to *Æ. erythrocephalus* of the Himalayas, but differing from Dr. Jerdon's description of that bird (B. Ind. ii. p. 271) in having no white superciliary stripe, and the breast and belly, below the black throat-spot, pure white with a broad deep-chestnut breast-band and chestnut down the flanks, paler on the sides of the abdomen and browner on the tibiæ, tipped with white on the vent.

Length (of skin) 3·5 in.; wing 1·8 in.; tail 1·8 in.

The full-grown young has the whole of the under parts white, with a tinge of ochreous-yellow on the breast and belly; the crown brownish-grey instead of brick-dust red; the upper parts dingy-grey. The quills are brown, washed with olive, and edged with yellowish-olive. Except for the downy state of many of its

feathers it might well be taken for a distinct species. I have, however, two partially moulted, showing the change from the immature into the adult.

The Tingchow mountains seem to promise a truly golden harvest. As soon as the moulting-season is past I will send to ransack them again.

Amoy, 18th September, 1867.

V.—*Observations on the Egg-beds of Æpyornis*.

By ALFRED GRANDIDIER*.

THE attention of the Academy has been called, on several occasions, by M. Isidore Geoffroy Saint-Hilaire, to a gigantic bird, whose existence had been revealed to him by some eggs of colossal size, and by some fragments of broken bones, sent from the southern part of Madagascar.

It did not then seem impossible to the learned Academician that this bird, to which he gave the name of *Æpyornis*, still lived in the unknown countries of the south of the island; most scientific men have shared his opinion. The latest researches destroy all hope in this respect.

The immense extent comprised between the sea, latitude 20° S., and longitude 44° 30' E. [of Paris], which had hitherto remained unexplored, is a vast arid plateau, of the height of 142 *mètres*, interrupted here and there by clumps of stunted

* [We have to offer our best thanks to M. Grandidier for a copy of this paper, "Observations sur le gisement des œufs de l'*Æpyornis*," communicated to the Academy of Sciences of Paris, and printed in the 'Comptes Rendus' for the past year (vol. lxx. pp. 476-478), as well as to Mr. G. Dawson Rowley for a translation of the same, he having obtained the author's permission to publish it in our pages. So far as we are aware, this paper is the first that has been written on the subject by any one personally acquainted with Madagascar; and hence the knowledge we have possessed respecting the geological formation and the kind of country in which the remains of *Æpyornis maximus* have been found has hitherto been extremely imperfect. M. Grandidier has recently returned to Madagascar to renew his researches there; and we trust that even greater success will attend his future than he has already met with in his past investigations. —ED.]

trees, interspersed with arborescent *Euphorbiaceæ* and "nopals" [*Opuntia*]. This country is little inhabited; it is not, however, altogether a desert, and here and there are found some miserable huts, the abode of the poor wretches who vegetate in these desolate tracts.

On seeing this bare region, which man daily traverses in all parts, there can be no doubt as to the complete disappearance of the *Æpyornis*. The oldest of the Antandrouis have never heard the gigantic bird spoken of; no tradition, contrary to what has been often said, exists amongst them on the subject, as I have convinced myself at many *kabars* or public gatherings. The vast forests of the centre, cut up by paths in every direction, and frequented by the Hovas, no longer permit a hope of hereafter finding there this bird, the existence of which is attested by the numerous remains one daily finds on the south coast of Madagascar; for although entire eggs are rare, fragments are not, and of them I myself was able to collect a tolerable quantity.

The eggs brought to Europe have always been found in the middle of the deposits caused by unusual falls of rain,—the accidental torrents, which bear down the sand with them, leaving the eggs discovered. It is only on the portion of the coast comprised between Cape S. Mary and Machikora, that to my knowledge eggs, or fragments of eggs, have been found; Mananzari, the island of S. Mary, and Port Leven, however, are also spoken of as places where they have been found.

In exploring the neighbourhood of Cape S. Mary I applied myself chiefly to the study of the soil, wherein I found the remains which I lay before the Academy; I have not been fortunate enough, in spite of all my efforts, to procure any bones.

Immense dunes accumulated on the sea-shore rise upon a horizontal limestone. This limestone, which stretches nearly at the water-level to about a hundred *mètres* from the bank, continues under the dunes themselves; of a yellowish white, an irregular texture, sometimes very compact, without fossils, it is here and there hollowed into circular holes, of which some contain a recent breccia, formed of grains of quartz and fragments of shells united by a calcareous cement.

The dunes, which extend on the south coast of Madagascar from longitude $42^{\circ}44'$ to $43^{\circ}25'E.$, are only separated from the sea by a very narrow flat beach, of not more than 3 or 4 *mètres* in breadth, covered with a quartzose sand, plentifully mixed with garnet. These dunes, the slope of which often measures more than 60° , rise to a height of 142 *mètres*; their perfectly rectilinear summit gives them the appearance of fortifications made by the hand of man, rather than the work of the wind. They are composed of the remains of shells, reduced to an impalpable dust, and of very fine grains of quartz. At their base I have collected *Lucina tigerina*, L., and a coral of the genus *Favia*, species belonging to the Indian Ocean; but it is on their slopes that the fragments of the eggs of *Æpyornis* are found, mingled with the remains and moulds of land-shells:—1st. *Bulinus faranii**, Fér.; 2nd and 3rd. *B. affinis* (sp. n.), *B. crassilabris*, Gray, *B. clavator*, Petit, *B. obturatus*, Reeve; 4th. *Helix* (sp. ind.); 5th. *Clyclostoma* (sp. ind.). I have very seldom found organic remains in digging in this deposit or in traversing the higher plateau.

The rains, as well as the winds, carry away only the finest sand, leaving the shells and the fragments of eggs, which they have denuded, gradually to accumulate on the steep slopes; it is in fact in the parts destitute of vegetation, and above all in a little ravine where the waters have left evident traces of their effect, that I have collected the greater part of the organic remains which I have the honour to submit to the inspection of the Academy. The places protected from denudation by the prickly vegetation and the stunted shrubs characteristic of that region, do not present anything like the same abundance of subfossils.

With the shells are sometimes found mixed calcareous stones, still angular, although rolled, in size varying from that of a cannon-ball to that of a bullet; but, abundant as they are on the surface of the higher plateau, and on the slopes sheltered by shrubs, they are somewhat rare on the denuded slopes.

On the top of the dunes, only plains covered with stunted

* This subfossil *Bulinus* has partly preserved its colours. It still lives in the island of Madagascar.

shrubs and "nopals" are to be perceived. Further to the north the prospect is not altered, and the plateau remains as uniform, without the smallest hillock. On this plateau I have not seen any fragment of the eggs of *Apyornis*.

The chain of mountains which run along the coast appears to be all granitic. The strong currents which set round this coast and wash the foot of these mountains, tend daily to restrict the island on this side. Under the protection of this chain, to the south of the central mass and of the secondary formations, thoroughly characterized by a large species of *Nerinae*, of Trochoid form, whose existence I have recognized in latitude $23^{\circ} 30' S.$, and longitude $42^{\circ} 40' E.$, corals probably grow, as they do at the present time on the south-west coast, and they have formed the base on which is raised the recent formation I have just mentioned.

The daily extension of the west coast is perceptible; the presence of two salt lakes, situated about ten leagues from the coast, from which they are only separated by a plain of sand, and where are found the same fish as in the sea, the immense arid delta which exists between the Kitoumbou and the Manoumbe, the little depth which exists for many miles from the shore, the daily development of the coral-banks—all demonstrate the enlargement of the western region of Madagascar.

Thus, while admitting the actual non-existence of the *Apyornis*, one is obliged to allow that this gigantic bird has lived at an epoch not far distant, seeing that its remains are found in the most modern formations, the continual development of which one still traces at the present day. It may perhaps have existed even at the commencement of our era; but when the country became peopled, it was quickly exterminated, as has been the case with the Moa (*Dinornis gigantea*) &c. of New Zealand.

9 September, 1867.

VI.—*Note on Lanius melanthes, Swinhoe, and on Lanius cephalomelas, Bp.* By Viscount WALDEN.

THE rediscovery in China of the dark and peculiarly coloured Shrike to which Mr. Swinhoe (*Ibis*, 1867, p. 405) has given the

title of *Lanius melanthes*, is of much value and interest. It sets at rest the doubts hitherto entertained as to the specific validity, if not as to the existence even, of such a Shrike; and although I have not had an opportunity of seeing Mr. Swinhoe's specimen, he has so fully described it that I have no hesitation in referring it to the *Lanius fuscatus* of Lesson, who appears to have first discriminated this species, giving in 1831 (*Traité d'Ornithologie*, p. 373) the following short notice of it—"Pie-grièche enfumée, *Lanius fuscatus*. Plumage brun de suie enfumé",—but without mentioning any locality for it.

In his "Monographie des Laniens" (*Rev. et Mag. de Zool.* 1863, p. 434, note) Bonaparte refers to Lesson's species in these words:—"Quid *Lanius fuscatus*, Lesson, Mus. Paris. ex China: luride fumigatus, alis caudaque brevioribus, sed rostro typico?"

Fortunately, the type-specimen came under the critical notice of M. Pucheran. In that author's admirable paper on the "Types Dentirostres" of the Paris Museum (*Arch. du Mus.* vii. p. 368, 1854-1855) we find these remarks:—" *Lanius fuscatus*. * * * Cet individu m'est indiqué comme originaire de Chine. Ses teintes sont bien noirâtres, surtout sur les côtés et en avant du cou. Il y a une teinte rousse en dessus, en dedans des tectrices alaires supérieures. Cet exemplaire est de grande taille comme le *Lanius shach*. Est-ce une variété mélanienne? Est-ce un individu vraiment enfumé? Ce sont des questions que l'avenir seul est appelé à résoudre." These questions Mr. Swinhoe has been able to answer. He does not regard it as a melanism, and it really seems to be a good species.

A specimen of this Shrike, preserved in the Leyden Museum, appears also to have attracted the attention of Dr. Hartlaub; for, in a paper entitled "Zwei unbeschriebene Vögel des Leydner Museums" (*Journ. für Orn.* 1855, pp. 361, 362), we find that eminent ornithologist, under the name of "*Lanius lugubris*, Temm.", describing another specimen of the same species in the following words:—"Supra obscure nigro-cinereus, tergo, uropygio et tectricibus caudæ superioribus nonnihil brunnescentibus; alis, cauda, fronte, superciliis et capitis lateribus nigris; remigibus, gula et jugulo obscure fuscis; subtus fusco-cinereus; crisso et subcaudalibus bruniori,

bus; subalaribus nigris; rostro plumbeo-corneo; pedibus nigris. * * * China. Grosse typische Art." Further on, in the same volume (p. 426), in his 'Index' to Dr. Pucheran's series of papers on the types in the Paris Museum, Dr. Hartlaub alludes to Lesson's species in a way which seems indirectly to identify it with that of Temminck; for he says, "*Lanius fuscatus*, Less. p. 368.—Quid? China. (Bona species: Hartl. Mus. Lugd.)" *

This Shrike seems to be closely allied to *L. tephronotus* (Vigors, P. Z. S. 1831, p. 43).

Lanius cephalomelas†, Bonaparte (Rev. et Mag. de Zool. 1853, p. 436), is another doubtful Shrike, which does not appear to have been satisfactorily identified. The Prince described it from Manilla specimens of Consul Lannoy, in the Brussels Museum, and of Kittlitz, in that of Frankfort. The diagnosis is thus given:—"Major: niger; subtus albus; dorso griseo, hinc inde albo, postice cum uropygio et hypochondriis pallidissime rufo: speculo alari remigibus interne ad basin, secundariis apice quoque, albis: cauda valde cuneata; rectricibus subtruncatis, prima et secunda latissime albo marginatis, tertia utrinque macula mediana marginali pogonii interni apiceque albis." It is impossible to read this description, coupled with the consideration of the Philippine origin of the types, without at once recognizing Sonnerat's "*Pie-grièche d'Antique*" (Voy. à la Nouv. Guin. p. 114, pl. 70), to which Scopoli (Fl. et Faun. Insub. ii. p. 85, no. 13) in 1786 gave the name of *Lanius nasutus*, Sonnerat's specimen having a prolonged and malformed maxilla. The careless Italian author says "mandibula inferiore elongata incurva", notwithstanding Sonnerat's observation, "La partie supérieure en est très-longue, et sa courbure paroît si excessive, qu'on pourroit croire que c'est un défaut de conformation dans l'individu qui a servi pour la description." Gmelin in 1788 (Syst. Nat. i. p. 301, no. 29), upon the same plate founded his *L. antiguanus*. This black-headed Shrike is closely allied to,

* I have an impression, although I cannot refer to the passage in which he did so, that Bonaparte subsequently united the two species.

† [This word is printed *cephalomelus* in the passage cited, but of course by mistake.—Ed.]

if not identical with, the Hindostan *L. nigriceps* (Frankl. P. Z. S. 1831, p. 117). Indeed Scopoli's and Gmelin's designations have usually been associated with Franklin's on the hypothesis that Sonnerat described and figured an Indian specimen; but Bonaparte's species seems to establish the existence of a Philippine black-headed Shrike; and until specimens from both localities are compared, it will be reasonable to presume that they belong to two distinct species.

VII.—On a recently discovered Tanager of the genus *Calliste*.

By P. L. SCLATER, M.A., Ph.D., F.R.S., Secretary to the Zoological Society of London.

(Plate III.)

IN the 'Journal für Ornithologie' for 1866 (p. 163) Dr. Cabanis has given the characters of a new species of Tanager, of the genus *Calliste*, from Guatemala, and has done me the compliment of proposing to call it after me, *Calliste sclateri*. Unfortunately there already exists a *Calliste sclateri*, so named by Lafresnaye* (Rev. Zool. 1854, p. 207). This, it is true, is not a very distinct species, being little, if anything, more than a dark-coloured variety of *Calliste aurulenta*. But it will not, nevertheless, be advisable to call a second bird of the same genus by the same name; and I therefore propose to return the compliment paid to me by Dr. Cabanis, and to call the new Guatemalan species *CALLISTE CABANISI*.

Knowing the interest I take in the Tanagers generally, and in particular in those of the genus *Calliste*, Dr. Cabanis has been kind enough to forward to me for examination the unique specimen upon which his description was founded; and the accompanying figure (Plate III.) has been drawn from it. This example is not very fully adult, as Dr. Cabanis has already remarked; but there can be no question of its distinctness from all hitherto described species. It may stand as follows:—

CALLISTE CABANISI.

Calliste (sive *Callispiza*) *sclateri*, Cab. J. f. O. 1866, p. 163.

Supra viridescenti-cærulea, alis caudaque nigris cæruleo margi-

[* See Sclater's 'Monograph of *Calliste*,' p. 31, pl. xiv. fig. 1.—Ed.]

natis: tectricibus alarum minoribus extus omnino cæruleis, interscapulio toto viridi, pilei plumis nigris cæruleo marginatis: subtus pallide viridescenti-cærulea, ventre medio albescente; pectore nigro squamulato: rostro et pedibus nigris, mandibula ad basin plumbescente. Long. tota 5·7, alæ 3·4, caudæ 2·3 poll.

Hab. Guatemala occidentalis in sylvis regionis “*Costa Cuca*” dictæ.

Mus. Berolinense.

As regards the position of this bird in the genus *Calliste*, I quite agree with the excellent remarks of Dr. Cabanis. *Calliste cabanisi* is a fine large species nearly equalling *C. brasiliensis* in size, but, as regards colouring, more closely allied to *C. atricapilla* than to any other species. Pending the receipt of further examples, which may show us whether the sexes are alike, and how far the present example differs from the normal colouring of the adult, I should propose to locate it near *C. atricapilla* and *C. nigroviridis*.

Costa Cuca is a low-lying district on the Pacific coast of Guatemala, below Quezaltenango, towards the frontiers of Mexico. Mr. Salvin (who is as much delighted with the news of a Guatemalan bird not in his collection, as I am with the discovery of an additional species of *Calliste* not in mine) tells me that he was aware of a small collection having been formed in this district by Dr. Bernoulli, a Swiss physician resident at Masatenango, and transmitted to Berlin. This specimen was, no doubt, one of the series. The discovery of this bird is of the greatest interest, as no species of *Calliste* was previously known from the Pacific slope of Guatemala, although there is an extensive wood-region along the coast in every respect adapted to their habits.

In the “*Ibis*” for 1863 (p. 480) I have given an account of the species of the genus *Calliste* that have been discovered since the completion of my Monograph. The present bird is the first new addition that I have met with since that date. But I may remark that I have now seen many skins of *Calliste frantzii* of Costa Rica (*l. c.* p. 451), and am convinced that it is not really different from *Calliste icterocephala* of Ecuador.

VIII.—Notes on Various Indian Birds.

By R. C. BEAVAN, Capt. Bengal Staff Corps, C.M.Z.S.

[Continued from 'The Ibis' for 1867, p. 455.]

554. PHYLLOSCOPUS TRISTIS. Brown Tree-Warbler.

Procured at Umballah, 23rd of October, 1866. Length 4·25; wing 2·3125; tail 1·6875; tarsus ·6875; spread of foot underneath ·875; bill from front ·3125, from gape ·4375. Referred to this species by Colonel Tytler, although my dimensions are smaller than Dr. Jerdon's.

Birds of the genus *Phylloscopus* are called "Phoochee" by the natives of Maunbhoom. I have procured several other species, but have not been able to identify them. I believe I got *P. fuscatus*, *P. lugubris*, and *P. nitidus* in Maunbhoom, and *P. viridanus* near Barrackpore, but am not at all certain.

564. REGULOIDES TROCHILOIDES. Median Crowned Warbler.
Darjeeling collection, 1862. Two specimens.

573. ABRORNIS ALBOSUPERCILIARIS. White-browed Warbler.

This is apparently the species so abundant at Simla in May and June, where it is the only representative of the *Phylloscopinae* observed by me. It frequents gardens, apricot-, apple-, and pear-trees, and other thick green foliage. Later in the season I observed it mixed up with large flocks of small Titmice. "Yellow-breasted Warbler" seems a more appropriate name for it. I have once or twice observed it close to the house in a thick clump of honeysuckle; and it is not at all shy. The dimensions of three specimens are as follows:—

	Length.	Wing.	Tail.	Tarsus.	Bill.	Extent.
June 11th.	4·25	2·25	1·75	·75	·4	5·5
„ 15th.	4·25	2·125	1·625	·6875	·4	6
„ „	4·375	2·25	1·625	·6875	..	6·25

581. SYLVIA ORPHEA. Large Black-capped Warbler.

I procured my first specimen of this bird at Kashurghur, Maunbhoom, in March 1864, and it was the only one that I observed in that district; but I found it tolerably common at Umballah in October 1866, where it frequents the babool-trees (*Acacia*, sp.), creeping about very silently, and, when disturbed, trying to sneak away into the thickest parts.

Specimens procured on 22nd October had no trace whatever of a black head, and were considered by Col. Tytler to be the young of the year; but in my opinion the state of the plumage was not sufficiently juvenile; and I think that the old birds adopt a different colouring according to the time of year, probably putting on the black head as the breeding-season approaches*. The specimens just mentioned (A and B) may be thus described:—Ashy-grey above, pure white beneath; olive-brown on the secondaries and flanks; bill and legs plumbeous; irides yellowish-grey. They were moulting, the tail not being fully developed, but the white outer feathers beginning to show in it.

A specimen (C), killed 27th October, was beginning to get a black head. It also was moulting, and was the first I had come across with any trace of the black plumage. Irides grey.

A fourth specimen (D), killed on November 12th, had a fully developed black head, and its colours altogether of a brighter and purer hue than the specimens above mentioned, one of which was a female; but the sexes of the others were not ascertained.

	Length.	Wing.	Tail.	Tarsus.	Bill.	Gape.	Extent.
A ..	7	3	2·75	·937	·625	·875	8·75
B ..	6·75	3·06	2·75	·875	·625	·875	9
C ..	6·87	3·12	3	·875	..	..	..
D ..	7·12	3·06	2·75	·875	·687	·937	9·37

582. SYLVIA AFFINIS. Allied Grey Warbler.

A bird found very abundantly throughout the station of Umballah in the cold weather appears to be referable to this species†. It chiefly frequents tamarisk- and acacia-trees, and utters, when disturbed, a sharp “titick.” Babool-trees form an especially favourite resort; and in these one frequently sees both this and the preceding species. My specimens agree fairly in

* [That this view of the case is correct, there is probably little doubt. Cf. Von der Mühle, Monogr. Europ. Sylv. p. 48.—ED.]

† Lord Walden, however, suspects it to be identical with the Common Whitethroat of England (*S. cinerea*), as Dr. Jerdon formerly considered it. See, however, Mr. Blyth’s remark on this point (*Ibis*, 1867, p. 28).

their measurements with the dimensions given by Dr. Jerdon, except in length, since none of mine exceed 5·5. It seems possible that Col. Tytler is mistaken in referring the Umballah bird to this species, instead of to *S. curruca*, with the description of which it agrees equally well.

584. HENICURUS (errore *Enicurus*) MACULATUS. Spotted Fork-tail.

Several specimens obtained in my collection at Darjeeling in 1862. I frequently observed it there in the valleys of the Great and Little Rungeet Rivers, and when crossing the Rummam River into Sikkim in the first expedition of 1861. At Simla, in 1866, I again procured this bird, both the adult and the young of the year. Dimensions as follows:—

	Length.	Wing.	Tail.	Tarsus.	Bill.	Extent.
May 30. Adult ..	10·875	4·12	5·62	1·187	·75	12·5
June 10. „ ..	11	4·5	6	1·187	·75	12·5
. . Young..	9·25	4	4·5	1·06	·62	11·5

The last specimen wants the white frontal patch altogether, and is dark fulvous-brown on the whole head, neck, and back—parts which, in the fully adult, are jet-black and pure white; this brown colour extends as far as the middle of the breast; on the belly and flanks it is slight, and mingled with white, which becomes much purer in hue on the lower belly, under tail-coverts, and rump. The white wing-band, also, is slightly tinged with brown. The bill and legs are as in the adult.

On the 19th October, on my way down the hill, about thirty miles from Simla, on the cart-road to the plains, at some distance from any water, I obtained a very fine specimen of the adult bird. It was clinging to the scarped side of the bank above the road, apparently feeding on some insects there.

587. HENICURUS SCOULERI. Short-tailed Fork-tail.

I have come across this pretty little bird on two occasions only—first in Darjeeling in 1862, and secondly at Simla in June 1866, when a pair were brought in by my “shikaree.” The dimensions of these were as follows:—

	Length.	Wing.	Tail.	Tarsus.	Bill.	Extent.
♂ ..	5·62	2·75	1·87	·87	·437	8·875
♀ ..	5·5	2·75	1·87	·87	·437	8·625

The plumage of the female is more dully coloured than that of the male.

The legs and claws are fleshy white. Dr. Jerdon is evidently in error when he calls the former "black."

589. *MOTACILLA MADERASPATANA*. Pied Wagtail.

I only met with this Wagtail on the Cossye River in Maunbloom, in February 1865, where I found it tolerably common, in pairs, in the vicinity of rocks. It is doubtless to be found on the other hill-streams of that district. I was greatly struck with its song the first time I heard it. The male, seated on a rock in mid-stream, gave out one of the most delicious melodies that I have ever heard, particularly clear and sweet, and second to no other Indian songster, except perhaps *Cittocincla macrura*. In this species I did not observe the peculiar jerking motion of the tail, so characteristic of the English Wagtail.

590. *MOTACILLA LUZONIENSIS*. White-faced Wagtail.

This species is tolerably common by the banks of rivers in Maunbloom, and has a pleasing song, which, however, wants the tone and execution of that of *M. maderaspatana*.

Moulmein, Sept. 25th, 1865. I am inclined to think that the grey garb, described by Dr. Jerdon as the "winter plumage" of this species, is the usual dress of the female, whilst that of the male is described by him as the "summer plumage;" at least a pair first seen here to-day are so; they have only just arrived, and are in beautiful plumage. In what I take to be the female in cold-weather plumage, the breast-band only is black, the rest ashy-grey. I also observed this species at Barrackpore (P. Z. S. 1865, p. 695).

At Mahasoo, near Simla, on the 29th Sept. 1866, I captured a fine pair in a clap-net. They were the first I had observed that season, and their dimensions were as follows:—

	Length.	Wing.	Tail.	Tarsus.	Bill.	Gape.	Spread foot.	Extent.
♂ ..	8	3·75	3·87	·937	·437	·687	1·25	11·5
♀ ..	7·62	3·5	3·5	·937	·437	·687	1·25	10·62

Both of these were in the grey or winter plumage.

It is curious to observe with what regularity this species ap-

pears to arrive simultaneously, or nearly so, in parts of India so widely apart as Simla, in the Alpine Punjab of India, and Moulmein, in Burmah. This will the better appear from the subjoined list of dates of its first appearance in different localities in various years as observed by the late Dr. Scott and myself:—

1863.	Umballah.....	Sept. 8	} Dr. Scott.
"	Hansi	" 28	
1864.	Sunawur, near Kussowlie, { in the hills	" 8	
"	Hansi	" 9	First noted.
"	Barrackpore	" 26	{ R. C. B. (P. Z. S. 1865, p. 693).
1865.	Umballah.....	" 30	{ "Abundant, have been in some days." Dr. Scott.
"	Moulmein, Burmah.....	" 25	R. C. B.
1866.	Umballah.....	" 11	Dr. Scott.
"	Mahasoo, Simla	" 29	R. C. B.

I collected a large series whilst at Umballah, in October and November 1866, as I was not at all sure whether the bird so abundant there at that time might not be *M. dukhunensis*; but Col. Tytler pronounced them to be the present species. According to Dr. Jerdon's views on the respective distribution of the two species, it might be either one or the other. Of *M. dukhunensis* he says that it extends into the North-west Provinces, Sindh, and the Punjab; and of *M. luzoniensis*, that it occurs chiefly in Northern India; so that he gives us very little assistance in ascertaining which is the species under review, which is certainly anything but "solitary."

	Length.	Wing.	Tail.	Tarsus.	Bill.	Gape.	Extent.
A	8.25	3.87	3.87	.937	.5	.75	11.62
B	8.25	3.62	3.87	1	.5	.75	11.5
C	7.5	3.5	3.62	.875	.5	.75	10.62
D	7.75	3.62	3.62	.875	.437	.687	10.87
E	7.5	3.5	3.62	.875	..	..	10.5

A. Black head and breast for 1.5. B. Head less black, and breast for 1.25. C. Dark grey head, and breast black for 1. D. Head grey, breast but slightly marked with black. E. Head grey, black crescent only on breast.

These specimens were all killed on the same day, and clearly

show the great variety that exists in the plumage of these birds on their first arrival in India. Dr. Jerdon says that most of the birds assume their summer plumage before leaving the country, which Dr. Scott has observed that they do about Umballah about the end of April*.

592. *CALOBATES SULPHUREA*. Grey-and-Yellow Wagtail.

Occasionally observed in the Maunbhoom district in 1864 and 1865, but far from common. At Barrackpore, in 1864, I observed the first bird of the season on Sept. 29th, and at Moulmein, in 1865, on Sept. 16th. The late Dr. Scott first observed the species in 1862 at Hansi, on 7th October; in 1863 at Umballah, on Sept. 3rd; and in 1866, on 21st Sept., upwards of fifty in a flock.

593. *BUDYTES VIRIDIS*. Indian Field-Wagtail.

This bird is exceedingly abundant at Barrackpore in the beginning of the cold weather. It associates with the herds of cattle feeding on the parade-ground, and is uncommonly tame, allowing a near approach. In Maunbhoom I observed the species only early in the morning in January 1865, feeding on open grass-land. At Moulmein, on 20th Sept. 1865, there were several on the grass-plot in front of the Commissioner's Court, associating with *Alauda gulgula*. At Umballah, Oct. 20th, 1866, they were very abundant, and frequently in company with *Motacilla luzoniensis*. On their first arrival in the country they exhibit every variety of plumage.

594. *BUDYTES CITREOLA*. Yellow-headed Wagtail.

Specimens first observed by me at Simla, early in September 1866.

596. *PIPASTES AGILIS*. Indian Tree-Pipit.

This bird is exceedingly common in the cold weather about Barrackpore, in bamboo-topes, and in Maunbhoom, amongst mango-trees. They invariably feed on the ground underneath the trees, into the lower boughs of which they fly up when disturbed. I do not recollect ever having observed this species out in the open. It has got the peculiar "Wagtail" jerk of the

* The length of the wing of *M. dukhunensis* is given by Dr. Jerdon (B. Ind. ii. p. 219) as "8 $\frac{5}{8}$," which is surely a misprint for 3 $\frac{5}{8}$.

tail. By the natives of Maunbhoom it is called "Chancheeree," or "Chanseeree"*. .

599. CORYDALLA RICHARDI. Large Marsh-Pipit.

Three specimens, brought in to me by my "shikaree" at Simla, July 1866, agree well with Col. Tytler's specimens of this bird procured in the hills; but one or two shot at Umballah exhibit such a difference in colouring that I was at first inclined to consider them to be a distinct species. The following are the dimensions of an Umballah specimen (A), and of one (B) procured later at Morar (Gwalior):—

	Length.	Wing.	Tail.	Tarsus.	Bill.	Gape.	Extent.
A ..	7.75	3.75	3.37	1.06	.62	.87	..
B ..	8	3.87	3.5	1.06	.62	.93	12.25

These specimens are dark brown, with rufous edgings to the wing- and tail-feathers; that is, two-thirds of the outer, and one-third of the next rectrices are dull rufous; breast and lower parts the same, lighter on the throat. The supercilium is also somewhat rufous. The species frequents dry and sandy cultivated land, or perfectly dry plains in which there are a few scattered bushes every here and there. I have never seen it in swampy ground, as mentioned by Dr. Jerdon.

600. CORYDALLA RUFULA. Indian Titlark.

Procured at Morar, December 1866. Dimensions as follows:—

Length.	Wing.	Tail.	Tarsus.	Spread foot.	Bill.	Gape.	Extent.
7.37	3.5	3	1	1.437	.562	.812	11.25
7	3.5	2.62	1	1.5	..	..	10.75

In the first specimen the tertials exceed the end of the closed wing by .25.

* I noticed a species of Pipit, which I am nearly sure was *Pipastes arboreus* (No. 597 of Jerdon), feeding on the ground in my garden at Simla, in April 1866; but as I did not secure a specimen, I will not put it down separately. It did not stay for any length of time. I do not know a Titlark procured by me at Umballah on 24th October 1866, one of a pair feeding away from trees altogether. Col. Tytler referred it to *P. agilis*; but its habits were apparently different. The dimensions are:—

Length.	Wing.	Tail.	Tarsus.	Spread foot.	Bill.	Gape.	Extent.
6.62	3.37	2.5	.812	1.31	.37	.62	10.75

605. *ANTHUS CERVINUS*. Vinous-throated Pipit.

I procured a single specimen of a Pipit referred by Mr. Blyth (J. A. S. B. 1863, p. 459) to *A. rosaceus*, Hodg.; and this is given by Dr. Jerdon merely as a synonym of *A. cervinus*, Pallas. But it appears that *A. rosaceus* should probably be considered entirely a distinct species (Ibis, 1867, p. 32, note).

606. *HETERURA SYLVANA*. Upland Pipit.

My first specimen of this bird was brought to me at Simla, in July, by my native "shikaree." The whole of the under parts are dirty or fulvous white, paler towards the vent, each feather having a well-defined dark shaft, which gives a conspicuously striated appearance. This striation is perhaps most sharply defined on the flanks, and is caused by a dark brown shaft and line on each side of it. The ear-coverts are brown. The two middle rectrices are peculiarly pointed, and have their inner webs rufous. The rest are normal in shape, and, except the pair next the middle, which are wholly brown, have white tips gradually increasing in extent towards the outer pair, on which they are 1.5 in length. In this specimen the bill was flesh-colour, darker on the upper mandible; nostrils raised, uncovered; rictal bristles very few, small, and weak; legs light or yellowish flesh-colour; claws slightly darker. The second specimen I was lucky enough to see alive, and shoot, close to Simla, on August 2, 1866. I got it on the Mahasoo-road, near the small tunnel. It was put up off the low wall that skirts the road by my dogs, and, circling round, pitched again near the same spot on a stone, the colour of which it so closely resembled that I had some difficulty in making it out.

Both when flying and sitting still, it uttered a low plaintive Pipit-like call, almost impossible to syllable. It decidedly appears to me to be a *Stone*-, not a *Grass*- or *Meadow*-Pipit. It was very tame, and allowed me to approach within twenty yards. I dissected this specimen; it was a female, and its stomach contained *Gryllæ* and other small insects. Irides brown; upper mandible horny brown; lower mandible flesh-colour; gape yellow; legs flesh-colour, slightly darker perhaps than the lower mandible. Dimensions:—

	Length.	Wing.	Tail.	Tarsus.	Bill.	Gape.	Spread foot.
♂ (?)..	6·62	3	2·75	1	·56	·81	1·5
♀	7	3	2·5	·93	·5	·75	1·5

the hind-toe and claw of the female being ·6875. According to Colonel Tytler this species is not uncommon in the neighbourhood of Simla.

607. *COCHOA PURPUREA*. Purple Thrush-Tit.

Darjeeling collection, 1862. One specimen.

608. *COCHOA VIRIDIS*. Green Thrush-Tit.

Darjeeling collection, 1862. One specimen.

609. *PTERUTHIUS ERYTHROPTERUS*. Red-winged Shrike-Tit.

Tit.

At Mahasoo, near Simla, in September 1866, in thick cover by the roadside, I found a single specimen uttering its peculiar call, which reminded me somewhat of that of the common Bullfinch (*Pyrrhula vulgaris*). The irides were of a curious dark grey; legs flesh-colour, with brown claws; the bill has the ridge and tip black; the basal half of the upper mandible below the nostril, and the whole of the lower mandible, bluish lead-colour. Length 6·625; wing 3·25; tail 2·375; tarsus 1·0625; spread of foot underneath 1·375; bill from front ·5625, from gape ·8125; extent 8·5.

610. *PTERUTHIUS RUFIVENTER*. Rufous-bellied Shrike-Tit.

Darjeeling collection, 1862. Two specimens.

612. *CUTIA NIPALENSIS*. Yellow-backed Shrike-Tit.

Darjeeling collection, 1862. Three specimens.

614. *LIOTHRIX LUTEUS*. Red-billed Hill-Tit.

Darjeeling collection, 1862. One specimen*.

615. *LIOTHRIX ARGENTAUROS*. Silver-eared Hill-Tit.

Darjeeling collection, 1862. Four specimens.

616. *SIVA STRIGULA*†. Stripe-throated Hill-Tit.

Darjeeling collection, 1862. Three specimens.

* Four specimens of this very elegant bird are now alive in the Gardens of the Zoological Society of London.

† [We are indebted to Lord Walden for pointing out to us that to the synonyms of this species should be added *Garrulax feliciæ*, Less. (R. Z. 1840, p. 164), on the authority of Dr. Hartlaub (*op. cit.* 1843, p. 1.)—ED.]

617. *SIVA CYANOUREPTERA*. Blue-winged Hill-Tit.
Darjeeling collection, 1862. Two specimens.
618. *MINLA IGNEOTINCTA*. Red-tailed Hill-Tit.
Darjeeling collection, 1862. Two specimens.
619. *MINLA CASTANEICEPS*. Chestnut-headed Hill-Tit.
Darjeeling collection, 1862. Two specimens.
620. *MINLA CINEREA*. Dusky-green Hill-Tit.
Darjeeling collection, 1862. One specimen.
623. *IXULUS FLAVICOLLIS*. Yellow-naped Flowerpecker.
Darjeeling collection, 1862. Five specimens.
624. *IXULUS OCCIPITALIS*. Chesnut-headed Flowerpecker.
Darjeeling collection, 1862. Two specimens.
631. *ZOSTEROPS PALPEBROSUS*. White-eyed Tit.

Procured once only in Maunbhoom, in the hilly country above Chalta, in January 1865. I found the species frequenting high trees and flowering creepers in moderate-sized parties. It is seen also in gardens about Umballah.

Feb. 1866. Dr. Jerdon describes the legs as "reddish horny;" in a fresh specimen before me they are slate-blue.

A very good specimen, procured at Simla on 18th June, 1866, has the dimensions as follows:—Length 4; wing a little over 2; tail nearly 1·5; tarsus ·5625; bill from front nearly ·375; extent 5·75; bill above and at tip dark horny, below lead-colour; legs light lead-blue, much lighter than the bill. This is a very elegant little bird, but ought hardly, I think, to be called a Tit. I should be inclined to place it as a connecting link between the true *Paridæ* and, perhaps, *Abrornis*. Its note, when alarmed, or calling to its fellows, is a loud "twee," "twee," anything but a "feeble twitter," as described by Dr. Jerdon. About Simla it frequents thick umbrageous trees, apparently for the sake of the *Phytophaga* it comes across in them—such as oaks, walnuts, and in gardens plums and apricots.

634. *ÆGITHALISCUS ERYTHROCEPHALUS*. Red-headed Tit.
Darjeeling collection, 1862. Three specimens.

This species occurs at Simla in flocks of eight or ten, or more. They follow one another (like the English Long-tailed Tit) in

single file from tree to tree, keeping up an incessant low twittering. I procured my first specimen there on April 11th, 1866. It differs from Dr. Jerdon's description in the black eye-stripe extending quite round the nape, and being followed by pure ashy on the back; the upper tail-coverts are cinereous-ashy, and the irides are *yellow*, not brown, as stated by that author. Length 4·375; wing 2; tail (abraded) 2; tarsus ·625; extent 5·5; bill from front ·5. In another specimen, procured on June 29th, the black eye-stripe does not quite meet at the nape. The irides are bright yellow; legs dirty orange, or reddish brown, with the claws darker; bill black. Length 4·125; wing 2; tail 1·875; tarsus barely ·625; bill from front ·25, from gape ·375; extent ·575.

638. *LOPHOPHANES MELANOLOPHUS*. Crested Black Tit.

At Simla, April 20th, 1866, I found a nest of this species with young ones in it, in an old wall in the garden. I secured the old bird for identification, and then released her. The nest contained seven young ones, and was large in proportion. The outside and bottom consists of the softest moss, the nest being carefully built between two stones, about one foot inside the wall; the rest of it is composed of the finest grey wool or fur. Diameter inside 2·5 in.; outside about 5 inches. Depth inside nearly 3; outside 3·625. A specimen in the flesh, killed on the 29th of June, measured as follows:—Length 4·5; wing 2·5; tail 1·875; bill from front ·375; extent 6·75. The bill is jet-black; irides brown; legs and claws dark plumbeous-blue. This specimen, in moulting plumage, has the head and throat dark brown, inclining to ashy, but a few shining black feathers appear here and there.

641. *LOPHOPHANES BEAVANI*. Sikhim Black Tit.

This bird, which Mr. Blyth did me the honour of naming after me, I found, as mentioned by Dr. Jerdon, on Mount Tong-loo, near Darjeeling, in 1862; but, I regret, I have recorded nothing of its habits.

644. *PARUS MONTICOLUS*. Green-backed Tit.

Darjeeling collection, 1862. Four specimens.

Simla, April 11th, 1866.—A specimen in beautiful plumage,

procured to-day, differs from Dr. Jerdon's description in having a slightly defined yellow band round the back of the neck, below the white nuchal spot. The back is "olive green;" but the rump is pure ashy. The outer tail-feather on each side is white along the greater part of the outer web, and broadly tipped with white; the next two are also slightly tipped, but the rest not at all.

At Simla, on May 4th, 1866, I found a nest of this species in the wall of one of my servants' houses*. It contained five young ones, and was composed of fine grey pushm or wool, resting on an understructure of moss. This wool I afterwards found out was gleaned by the bird from the sweepings of a thick carpet. Dimensions:—

	Length.	Wing.	Tail.	Tarsus.	Bill.	Extent.
April 11th.	5·125	2·5	2·125	·75	·375	7·5
May 10th.	5·25	2·625	2·125	..	·375	7·5

The description given above holds good for these specimens also, only that all, except the two middle rectrices, are tipped with white. This species has a loud call and queer attempt at a song.

645. *PARUS CINEREUS*. Indian Grey Tit.

Dr. Jerdon says that this bird does not occur in Bengal, nor to the eastward; I however got a pair at Maldah in October 1864.

647. *MACHLOLOPHUS XANTHOGENYS*. Yellow-cheeked Tit.

I procured several at Simla in 1866. Dr. Jerdon's description of this species is not altogether accurate. The yellow superciliary stripe can scarcely be called "small;" it is ·75 in. in length, with a greatest breadth of ·25. The tail is not "black," as the Doctor, in his first line, inadvertently states, but "dusky-grey," as he says further on, and (excepting the outer pair of rectrices, which have their outer webs and tips pure white) is tipped rather with dirty yellow than "white," while the two middle pairs of rectrices are not tipped at all in the specimen before me. The rump is green tipped with ashy, the "olive-

* Walls in Simla are curiously constructed, of stone without mortar, strengthened with pine-wood beams every here and there.

green" extending only along the back. The outer primaries are "white-edged" on their outer webs only, which outer webs in the secondaries become bluish- or pearl-grey. This is also the colour of the middle pair of rectrices, and the outer webs of all the rest except the exterior pair, which, as stated previously, have them white. Both tail- and wing-feathers have black shafts. The cheeks, including the ear-coverts, sides of the neck and breast, are bright yellow; abdomen and under tail-coverts yellowish-white. Irides dark brown; legs and claws light verditer-blue; soles of the feet yellowish; bill jet-black. Dimensions:—

	Length.	Wing.	Tail.	Tarsus.	Bill.	Gape.	Extent.
June 2, 1866, A.	5·5	3	2·25	·6875	·4375	..	8·75
June 29, 1866, B.	5·375	2·875	2·2	·6875	·375	·5	8·5

This last specimen I shot in a walnut-tree at Annandale. The species is not nearly so common as *Parus monticolus*.

649. *MACHLOLOPHUS SPILONOTUS*. Black-spotted Yellow Tit.

Darjeeling collection, 1862. One specimen.

650. *MELANOCHLORA SULTANEA*. Sultan Yellow Tit.

Obtained at Kyodan, Salween River, Burmah, August 14th, 1865. Length 7; wing 3·875; tail 3; bill at front barely ·25; tarsus 8·75, nearly; extent 11. Irides dark brown; bill greenish-black. It occurs in small parties in heavy tree-jungle, and is very noisy. (*Cf.* P. Z. S. 1866, pp. 551, 552.)

[To be continued.]

IX.—Remarks on Prof. Huxley's proposed Classification of Birds.

By THE EDITOR.

OWING to the very liberal arrangements under which they may be procured, the 'Proceedings of the Zoological Society' are so generally accessible to the readers of 'The Ibis' that, in conducting this Journal, my predecessor and I have usually deemed it a work of supererogation to occupy its pages with notices of the papers contained in the 'Proceedings'—valuable and interesting though they almost always are. Looking, however, to

the importance of Professor Huxley's elaborate researches into the Classification of Birds, mentioned in a former number (*Ibis*, 1867, pp. 254, 255), the results of which, as communicated by him to the Zoological Society, have lately been published*, I deem it incumbent upon me to depart from the practice of which I have spoken, and specially to direct the attention of ornithologists to the essay in which that eminent zoologist, with his accustomed perspicuity, sets forth his views on the subject.

As on several points I regret to say I cannot agree with Prof. Huxley, I feel that it will be only fair to preface these remarks by giving a bare outline of the paper in question; for there may be some readers of this Journal who have not generally the opportunity of seeing the 'Proceedings;' but I would beg such persons (and I believe they are few in number) to seize the earliest occasion of consulting the original, in case I should in these remarks accidentally and unintentionally misrepresent the opinions therein contained.

After briefly recapitulating the principal characters possessed in common by *Aves* and *Reptilia*, causing them to be regarded by Prof. Huxley as forming one primary group of Vertebrates†, to which he has applied the name *Sauropsida*, and, again, the characters which distinguish Birds from Reptiles, he proposes to divide the former, the class *Aves*, into three orders:—(I.) SAURURÆ, Hæckel; (II.) RATITÆ, Merrem, and (III.) CARINATÆ, Merrem.

The SAURURÆ are represented, so far as our knowledge goes at present, by the marvellous *Archæopteryx* only; and being doubtless all extinct, we may here dismiss them from our consideration.

The RATITÆ comprehend the Struthious birds, and differ from all others in the combination of several peculiarities. The sternum has no keel, and ossifies only from lateral and paired

* "On the Classification of Birds; and on the Taxonomic Value of the Modifications of certain of the Cranial Bones observable in that Class." By Thomas H. Huxley, F.R.S., V.P.Z.S. *Proc. Zool. Soc.* 1867, pp. 415-472.

† Lectures on the Elements of Comparative Anatomy. London: 1864 (pp. 219-244).

centres; the axes of the scapula and coracoid have the same general direction; certain of the cranial bones have characters very unlike those possessed by the next order—the vomer for instance being broad posteriorly, and generally intervening between the basisphenoidal rostrum and the palatals* and pterygoids; the barbs of the feathers are disconnected; there is no inferior larynx; and the diaphragm is better developed than in other birds.

The *Ratitæ* are divided into five groups: the first contains the genus *Struthio*, the second *Rhea*, the third *Casuaris* and *Dromæus*, the fourth the *Dinornithidæ*, and the fifth the *Apterygidæ*. These five groups are separated by very trenchant characters, principally osteological, afforded not only by the cranial bones, but by many parts of the skeleton.

The CARINATE comprehend all other existing birds. The sternum possesses more or less of a keel, and ossifies, except possibly in the genus *Strigops*, from a median centre as well as from lateral paired centres. The axes of the scapula and coracoid meet at an acute, or, as in *Didus* and *Ocydromus*, at a slightly obtuse angle, while usually the vomer is comparatively narrow, and allows the pterygoids and palatals to articulate directly with the basisphenoidal rostrum.

“In this order the bones which enter into the formation of the palate are disposed in four different modes, which may be called respectively the Dromæognathous, Schizognathous, Desmognathous, and Ægithognathous arrangement.” The group of birds characterized by these different forms of palatal arrangement are accordingly regarded as so many Suborders.

With respect to their palatal structure the *Dromæognathæ* have a very great resemblance to the *Ratitæ*; but the keeled sternum of the *Tinamidæ*, the family which alone constitutes this Suborder, and the small angle formed by the articulation of the scapula and coracoid, lead Prof. Huxley to leave them among the *Carinatæ*.

* Following the practice of most anatomists, Prof. Huxley throughout terms these bones “palatine,” a word which appears to me to be formed from *palatium*, while the adjectival derivative of *palatum* would, I imagine, be “palatal.”

The *Schizognathæ* include a large assemblage of birds belonging to the Cuvierian Orders *Gallinacæ*, *Grallæ*, and *Palmipedes*. In this Suborder the vomer, though of variable size, always tapers to a point anteriorly, while behind it embraces the basisphenoidal rostrum between the palatals; but neither these last nor the pterygoids are borne by its posterior divergent ends. The maxillo-palatals are usually elongated and lamellar; they unite with the palatals, and, bending backwards along their inner edge, leave a fissure between the vomer and themselves. Except that the birds composing this Suborder are said never to possess more than one pair of muscles in the lower larynx, no other common characters are assigned to them. Six groups are distinguishable, which Prof. Huxley names respectively, (1) *Charadriomorphæ*, (2) *Geranomorphæ*, (3) *Cecomorphæ*, (4) *Spheniseomorphæ*, (5) *Alectoromorphæ*, and (6) *Peristeromorphæ*.

The remaining groups of *Grallæ* and *Palmipedes*, the *Accipitres*, the *Scansores*, the *Syndactylæ*, most of the *Fissirostres*, and *Upupa* form the Suborder *Desmognathæ*. In these birds the vomer is either abortive or so small that it disappears from the skeleton. When it exists it is always slender, and tapers to a point anteriorly. The maxillo-palatals are united across the middle line, either directly or by the intervention of ossifications in the nasal septum. The posterior ends of the palatals and the anterior of the pterygoids articulate directly with the rostrum. No other positive common characters seem to be possessed by the birds of this Suborder, which is divided into seven groups as follows:—(1) *Chenomorphæ*, (2) *Amphimorphæ*, (3) *Pelargomorphæ*, (4) *Dysporomorphæ*, (5) *Aetomorphæ*, (6) *Psittacomorphæ*, and (7) *Coccygomorphæ*.

Between this and the next Suborder, at present uncertain whether he should refer them to either, but, if so, inclining to the latter, Prof. Huxley temporarily places, under the name of *Celeomorphæ*, the Woodpeckers and Wrynecks.

All other existing birds—and of course incomparably the largest number of species—are placed in the Suborder *Ægithognathæ*, which comprehends the Order *Passeres* as restricted by the latest ornithologists, together with a few other forms which do not seem to arrive at the full Passerine perfection. These are

divided into two groups, (1) *Cypselomorphæ*, and (2) *Coracomorphæ*—the latter being further separable into two smaller groups, left unnamed, but the one (i.) divisible according to the laryngeal structure into (α) *Polymyodæ*, (β) *Tracheophonæ*, and (γ) *Oligomyodæ*, and the other (ii.) containing the genus *Menura*, which, so far as known at present, must stand alone. In the birds of this Suborder generally, the vomer is a broad bone, abruptly truncated in front, deeply cleft behind, and embracing the rostrum of the sphenoid between its forks. The maxillo-palatals are slender at their origin but expanded at their posterior ends, which do not unite either with each other or with the vomer. The anterior part of the nasal septum is frequently ossified; but this ossification is not united with the vomer. This structure is, according to Prof. Huxley, substantially repeated in the great majority of these birds, with some minor modifications which, he suggests, are characteristic of the natural subdivisions of the group. Thus, for example, *Menura* possesses no ossified maxillo-palatals at all; and *Tyrannus*, *Cephalopterus*, *Chasmorhynchus*, *Pteroptochus*, and *Gymnorhina* also differ, more or less, from the normal Passerine birds in the structure of their maxillo-palatals.

Such, then, is the briefest possible outline of the principles of Prof. Huxley's proposed arrangement. Want of space alone precludes me from entering further into details; and I trust I am not open to the imputation of any unfairness in stopping here. Prof. Huxley deserves, I conceive, the warmest thanks of all ornithologists for the manner in which he has endeavoured to lay before us what he believes to be a really sound system of classification in place of those exceedingly irrational and unsatisfactory schemes with which we have hitherto had to be contented. He has, I know, come to the subject without bias of any kind; and the importance which in his eyes is now assigned to characters exhibited by the palatal bones, was unpremeditated by him, and has forced itself upon him as his investigations proceeded*. I cannot pretend to have laboured on the subject anything like so diligently as Prof. Huxley,

* See 'Journal of Anatomy and Physiology,' No. II. May 1867, pp. 369-371.

though I have made a special study of some parts at least of the osteology of birds for the greater part of my life ; and I have not had at my disposal anything like the rich store of material to work upon which he has enjoyed. It may, therefore, seem very presumptuous in me to declare the divergence of my opinion from that of an anatomist so justly entitled to respect ; but I must confess that, agreeing on the whole with many of the results at which he has arrived, it is with special reference to the supposed importance of these palatal characters that I am most inclined to differ from him.

The opinion has before been more than once laid down in this Journal, that a scheme of classification, composed solely with reference to one character, will never lead us to a true comprehension of the system of Nature. On one occasion this opinion was put forth with special allusion to the proposed classification of Dr. Cornay, of Rochefort, though in the passage to which I refer ('Ibis,' 1860, p. 325), that gentleman's name was not mentioned—a classification entirely based, as Prof. Huxley's chiefly is, on the modification of the palatal structure*. It is, perhaps, significant that, when this classification was fully published, Dr. Hartlaub made on it some remarks which, without occupying space by here translating them, are exactly in accordance with the opinion just above enunciated, while he termed Dr. Cornay's attempt "unphilosophical and one-sided" (Bericht, u. s. w. 1847, pp. 2-5). Now I am not going so far

* I believe I had the pleasure of first calling Prof. Huxley's attention to the researches of this gentleman ; but I myself having become oblivious of them, I was unable to do so until after the publication of the paper I am now criticising. Dr. Cornay made known the results of his investigations to the French Academy of Sciences, January 15th, 1844. An abstract of his communication is to be found in 'L'Institut' for January 17th of that year (vol. xii. p. 21), which is briefly mentioned by Prof. Wagner in the volume of 'Reports on Zoology' published by the Ray Society (p. 278). Another extract from it is contained in the 'Comptes Rendus' for the same year (vol. xviii. pp. 94, 95); and the paper itself was published in full, three years later, in the 'Revue Zoologique' for 1847 (pp. 360-369), the first portion having, it is there said, already appeared in the 'Journal des Découvertes' (vol. i. p. 250). Dr. Cornay also seems to have addressed a "*Projet*" on the same subject to the French Academy, January 24th, 1842 (R. Z. 1842, p. 14).

as this. Those who disagree with Prof. Huxley most, of whom I am certainly not one, will hardly think the first of these opprobrious epithets applicable to anything he writes; and after what I have above said I cannot be supposed to imply that the last is. Still, on broad grounds, I believe Dr. Hartlaub is in the main right, and that, as I expressed myself in the discussion which took place after the reading of Prof. Huxley's Paper, a really natural arrangement can only be made out by taking an aggregate of characters. It is, of course, very easy to object that it is difficult to obtain such an aggregate of characters; but to this I would reply that, if it were not so by the nature of the case, the desired arrangement would undoubtedly have long since been discovered.

But having thus declared my general belief on the subject, I should like to consider more specially the application of Prof. Huxley's principles. The distinctive characters of the *Ratitæ* and *Carinatae*, as given by him, are obviously divisible into two categories—those which are absolutely peculiar to their respective Orders, and those which are not. Now those which are not peculiar are, of course, decidedly inferior to the others in value: they are, indeed, characters which are not diagnostic, and can only in a restricted sense of the word be termed "characters" at all. What then are these doubtful "characters"? Why, the very ones drawn from the structure of the bones of the palate. Prof. Huxley himself most candidly admits this. "The Dromæognathous birds are represented by the single genus *Tinamus*, which (as Mr. Parker has shown) has a completely struthious palate;" or, to pass from general to special observations, we read of the *Ratitæ*:—"The upper, or proximal, articular head of the quadrate bone is not divided into two distinct facets," which, of course, is perfectly true; but then, further on, of this same *Tinamus* we have, "The head of the quadrate bone is single, as in the Struthious birds." Therefore the single-headedness of the quadrate is not a distinctive character of the *Ratitæ*; and, indeed, it seems to me very doubtful if any of the other so-called "characters" of the palatal structure are of much greater value in distinguishing between the *Ratitæ* and the *Carinatae*. On the other hand, what a contrast is afforded by the remaining

characters adduced by Prof. Huxley! They are worthy of the name — the mode of ossification of the sternum, the direction of the axes of the coracoid and scapula, even the presence or absence of their respective processes, though this last point is not quite so satisfactory as might be. I therefore venture to submit that the palatal structure does not sufficiently furnish Ordinal characters.

Let us now examine the Suborders. That the majority of the forms united by Prof. Huxley under the title *Schizognathæ* are in reality very nearly allied, will be denied by no ornithologist, I believe, who thinks for himself, disregarding what his predecessors have written, and looking only to the facts of the case. No unbiased person who has ever made even a cursory examination of a Sandpiper and a Plover, and is acquainted with the peculiarities attending their mode of reproduction, will doubt that they belong to one and the same indivisible group; and no one who has ever compared the skeleton of a bird belonging to that group and of a Gull, will hesitate to declare that there is an intimate relationship between them. So far, then, my own investigations lead me to agree entirely with Prof. Huxley, and I am extremely glad to find that opinions I have long entertained now receive the confirmation of his high authority*. In like manner I see with pleasure that he considers (as I have done) the Bustards to be intermediate between the true Plovers and the Cranes; and I suspect that his assignment of places between the Cranes and the Rails to *Psophia* and *Rhinochetus* is an excellent suggestion. But then the Rails, in my opinion, lead directly to the true *Gallinæ*, which he is inclined to consider are more nearly reached from the normal "split jaws" by way of the Plovers and *Turnix*. However, perhaps this point is immaterial; provided we arrive at the true *Gallinæ* at last, the exact route we take is a matter of less consequence. That the Pigeons

* I have not before seen, so far as I can remember, this relationship maintained by any systematist; and to Prof. Huxley belongs, I imagine, the credit of first placing the fact of its existence on record. As stated above, I have long believed in it, and last year I pointed it out to my audience in an elementary lecture on birds, delivered at Cambridge, 30th November, 1866.

also come into this group hardly requires to be said. On another matter, the alliance between the Gulls and the Auks, I have much pleasure in stating that I have become a convert to Prof. Huxley's views. This I am quite ready now to admit, though not on the precise grounds he advances. To the Auks, the Divers and Grebes may be akin; but I have some rather strong doubts remaining as to the Penguins. Now on all these points, except one, I had already arrived at opinions closely resembling those of Prof. Huxley, but quite independently of any considerations of the bones of the palate. I accordingly maintain, without entering into any longer disquisition on the subject, that this very natural group, to which the name *Schizognathæ* is now applied, does not require to be defined by characters drawn from that part of the bird's structure. On the contrary, I cannot help feeling that the introduction of characters drawn from the palatal arrangement may rather have the effect of complicating and rendering obscure what was simple and clear enough without. Even the character which should be distinctive, according to the meaning of the name given by Prof. Huxley, is, on his own showing, not entirely so. In *Dicholophus*, a form at present, as it appears to me, of uncertain position, we read, "the internasal septum is ossified to a very slight extent, and the maxillo-palatine processes may meet in the middle line." If *Dicholophus*, then, is to be placed, as Prof. Huxley places it, among the *Schizognathæ*, the "character" drawn from the existence of a fissure between the maxillo-palatals can scarcely apply to it. A stronger case perhaps is afforded by *Crax*, which no one will doubt belongs to the *Gallinæ*, and therefore must come in here. *Crax* has its maxillo-palatals uniting anteriorly in an ossified nasal septum. It is impossible, I think, with this last exceptional instance before us, to regard the intermaxillo-palatal fissure as a true "character." Accordingly, then, the *Schizognathæ* (as I trust I have succeeded in showing) cannot be strictly defined by their palatal characters; and if not strictly defined by them, surely it would be better to leave such "characters" alone. Yet these *Schizognathæ* are certainly one of the most natural groups among the Suborders proposed by Prof. Huxley; and if palatal characters fail us in them, much more will they fail us

elsewhere. I therefore think it will be unnecessary for me to trouble my readers with examining in like manner the remaining Suborders of *Desmognathæ* and *Ægithognathæ*. It would be very easy to show that similar exceptions are found in them; indeed Prof. Huxley has supplied them all ready to hand. Whether it is owing to the individual structure of his own palate, I do not know; but in what proceeds from it there is always one and the same unvarying character observable. He says what he has to say in the plainest words possible, and he brings forward those facts which tell against his own views as readily as those which support them. To my shame I must say it, I have been here ploughing with his heifer, turning against him the very arms upon which he has wrought.

But, again, in the groups into which his Suborders are divided, how hard it is for Prof. Huxley to draw real characters from the palatal arrangement! The *Charadriomorphæ* seem, it is true, very homogeneous in this respect; but in the next group, the *Geranomorphæ*, we have *Grus antigone* alone rejoicing in the possession of basipterygoid processes, while, among the *Cecomorphæ*, *Procellaria gigantea* enjoys a similar privilege. Was it consciousness of this peculiarity which made that Antigone

“ ——— contendere quondam

Cum magni consorte Jovis; quam regia Juno

In volucrem vertit;”

or do sailors nowadays recognize from this feature in the latter an affinity between it and the *Anserinæ*, and so call it “Mother Cary’s Goose”? But seriously, do these special exceptions look as if such small modifications of cranial structure were of the highest value in classification? Surely it would be more agreeable to reason, when we find hints of a relationship between *Podargus* and *Cancroma*, and of “a singular superficial resemblance” which exists between the palate of certain Finches (*Loxia* and *Coccothraustes*) and the *Psittaci*, to consider such likenesses analogical, and to ascribe them to modifications resulting from somewhat similar methods of taking food—an explanation which would serve also to explain the similarity said to exist in this respect between the *Cypselidæ* and *Hirundinidæ*.

The Suborder which Prof. Huxley has treated most in detail

is that of the *Aetomorphæ*, equivalent to the *Accipitres* of Cuvier, and to the *Raptores* of most ornithologists. Herein he gives us an entirely new arrangement of the families composing it, to which I must briefly advert. Leaving the *Strigidae* as they were, he breaks up the usually recognized family *Vulturidæ*, and taking out the Vultures of the New World, *Cathartes* and *Sarcorhamphus*, makes a family of them by the name *Cathartidæ*; while he combines the Vultures of the Old World, *Neophron*, *Vultur*, *Gyps*, and others, with the ordinary *Falconidæ* in one family, bearing the designation of *Gypaetidæ*, and erects the genus *Gypogeranus* into the fourth family of the Suborder under the name *Gypogeranidæ*. Except that I have some suspicions as to the real affinity of the *Strigidae* with the rest of what are commonly called "Birds of Prey," I see no objection to this proposal; and I am quite ready to admit that the differences observable in the cranial structure of the Vultures of the Old World and those of the New are, when taken with the other characters cited, sufficient to justify the separation. So far as I know (but my knowledge, I must say, is only at second hand), there is no appreciable divergence in the habits of scavengers on either side of the Atlantic; the modifications which exist, therefore, cannot in this case be ascribed to any such cause as I suggested a few lines previously; and I am certainly not going to refuse some importance being attributed to slight cranial characteristics. To me it appears that every part of a bird's structure, to say nothing of every peculiarity in its mode of life, may, under certain aspects, throw light upon its affinities, and consequently on its real position in the System of Nature. For a long time I deemed the coracoid bone to be the most characteristic in the ornithic skeleton—not that I ever wished to rest a system of classification entirely upon that basis. I have not yet quite divested myself of this idea, though when, rather more than two years since, I first became acquainted with the form of the coracoid in *Didus*, a form so utterly unlike any other of which I know, my theory received a somewhat rude shock, which has lately been renewed on finding that in *Pezophaps*, unquestionably a close relative of *Didus*, the coracoid exhibits little, if any, of the same form, as I hope shortly to make generally known. But this fact merely corroborates the

belief I have previously expressed, that it is only from the consideration of an aggregate of characters that we can expect to reach our goal, and that we are on no account to be discouraged in our attempts to attain our *ultimus finis* by the difficulty of the task.

Professor Huxley informs me he is still continuing his labours on the *Sauropsida*; and I am sure all will be glad to hear it. I have not dwelt upon the *Coccygomorphæ*, the proper division of which certainly presents as difficult a problem to solve as any group does. For the present they are left in four groups, separated by the external characters of their feet, the first and last of which groups are formed respectively of the *Coliidae* and *Trogonidae*; the second contains the *Musophagidae*, *Cuculidae*, *Bucconidae*, *Rhamphastidae*, *Capitonidae*, and *Galbulidae*; while the third is made up of the *Alcedinidae*, *Bucerotidae*, *Upupidae*, *Meropidae*, *Momotidae* and *Coraciidae*. Prof. Huxley, however, seems to think that it may hereafter be desirable to separate these four groups still more widely, and in that case would retain the title *Coccygomorphæ* for the second.

I here close these remarks, many of which I well know are far from being adequate to the subject. I would fain hope that the classification I have dared to criticise will obtain the closest attention of ornithologists; and there is, of course, plenty more to be said about it. Though I have ventured to impugn some of the main principles on which the scheme is founded, I am not at all sure that it may not at last be generally adopted; but even if such be not the case, I am quite sure it will not be the least of the services rendered to science by the present occupant of the Hunterian Chair.

Magdalene College, Cambridge,
16 December, 1867.

X.—Notices of Recent Ornithological Publications.

1. ENGLISH.

The promised translation of Nitzsch's 'Pterylographie,' which we some time ago announced (*Ibis*, 1865, p. 118), has at length

been issued by the Ray Society*, and English-reading naturalists have it in their power to become conversant with the important branch of Ornithology of which it treats. We trust they will not neglect the opportunity. The work has been most carefully translated by Mr. W. S. Dallas, and is admirably edited by Mr. P. L. Sclater, who remarks in his preface:—"It was with no little satisfaction that I obtained the consent of the Council of the Ray Society to undertake the publication of an English translation of the present work, believing as I do that it is one of the most valuable and suggestive works on pure Ornithology ever published. Ever since I became acquainted with the important nature of Nitzsch's researches as here given, I have not ceased to wonder that the subject has not been taken up by succeeding Ornithologists. How this may have occurred in England it is not difficult to understand. But that not one of the many German Ornithologists, having this excellent basis to start from, should have continued the investigations of their illustrious compatriot, is indeed surprising. I trust, however, that the republication of Nitzsch's Memoir in its present form may induce some of the many enterprising Naturalists of the present day, either in this country or abroad, to follow up the work, as, until this is fully accomplished, we can never hope to arrive at a correct knowledge of the affinities of this very difficult class of Vertebrates."

Grateful as we are to the Ray Society for thus affording us so valuable an assistance as a translation of this work—the first on Ornithology they have published in the three-and-twenty years of their existence, we should have been still more obliged to them had they condescended to consult the convenience of those who will have to use it. The original work of Nitzsch, edited after his death by Prof. Burmeister, appeared in quarto form. The Society's translation is in folio, and consequently as inconvenient for reading or reference as it was possible to be. Nor was there the slightest necessity for this change. The Society, as we before mentioned, by a great piece of good luck

* NITZSCH'S Pterylography, translated from the German. Edited by PHILIP LUTLEY SCLATER, M.A., Ph.D., F.R.S. London: 1867. Folio, pp. 178.

became possessed of the original plates of the work, from which impressions of the smaller size could of course have been as easily taken. Nay, more, as it appears to us, there was no reason why the impressions of the plates should not have been once folded, so as to permit the book to appear as an octavo, in which form it would have ranged exactly with the octavo series of the Society's publications, and been thereby rendered as handy a volume as it now is cumbersome.

Did our space allow of it, we would willingly attempt to give an analysis of the researches carried on, and an abstract of the results arrived at, by this indefatigable author, whose labours, as Mr. Selater, in the passage above cited, shows, have been so unaccountably neglected. As a help to classification, in these days when long-established systems of ornithology are not exempt from Reform Acts, the investigations of Nitzsch must be regarded as of very high importance.

We have much pleasure in congratulating Mr. Eyton on the completion of his great work*, the publication of which has been proceeding at uncertain intervals since it was last noticed in 'The Ibis' (1860, p. 419). He richly deserves the gratitude of ornithologists for thus persevering to the end in bringing out a volume the like of which has never been attempted; and the more credit is due to him, since we fear that he will never be reimbursed for the large outlay which the production of so great a work necessarily demanded. It is illustrated by *upwards of one hundred and ten* plates, drawn by Mr. Erxleben,—not the best artist for such a purpose, we will freely admit; but, considering that hitherto a series of figures of the skeletons, or parts of skeletons, of birds has been a total *desideratum* by students of their osteology, we are by no means disposed to be captious in this particular, and we hail the completion of the work as singularly opportune just now, when the attention of so many ornithologists appears to be directed to the osteology of birds, with a view of arriving at a more natural classification of them. Nearly, if not quite, all the specimens from which the various

* Osteologia Avium; or a Sketch of the Osteology of Birds. By T. C. EYTON, Esq., F.G.S.: Wellington, Salop: 1867. 4to.

figures are engraved are contained in Mr. Eyton's extensive collection, and are so well selected that they give an almost complete series of the principal forms of bird-structure.

Mr. George Robert Gray has brought out another of his useful "Lists," and this time treats of the Gallinaceous Birds*, of all groups perhaps that which required it most; for it is many years since any author has published a list of the species showing their various synonyms. The present work exhibits several improvements upon its predecessors: for example, species not represented in the national collection are also enumerated (though references to the passages wherein they are described are not added, as might easily have been done); so that a very complete *conspectus* is furnished, which every ornithologist will know how to appreciate. Adhering in the main to his old arrangement of the Order, Mr. Gray divides the *Gallinæ* into seven Families:—*Pteroclidæ*, *Cracidæ*, *Megapodidæ*, *Phasianidæ*, *Tetraonidæ*, *Chionididæ*, and *Tinamidæ*; and descriptions of about a dozen new species of the last, as well as a few others in the remaining families, are given from types contained in the British Museum. Without going into details as to these, we may mention that the author has kindly informed us that he has since found *Francolinus roxana*, described (p. 52) as new, to be identical with *F. grantii*, Hartlaub (P. Z. S. 1865, p. 665). We do not at all agree with Mr. Gray in the propriety of recognizing a family *Chionididæ*, and still less in assigning the birds composing it to this Order. *Chionis* itself is most unquestionably allied to *Hæmatopus*, and *Thinocorus* and *Attagis* possibly to *Actiturus*; but all these genera certainly belong to the great Plover-Snipe group, first combined, we believe, by Nitzsch under the name *Limicolæ*.

The peninsula forming the ancient Duchy of Cornwall is not merely, according to the common ornithological view of it, to be regarded as a landing-place for stray birds from the south

* List of the Specimens of Birds in the Collection of the British Museum. By G. R. GRAY, F.R.S. Part v. *Gallinæ*. London: 1867. 12mo, pp. 120.

and west, which make the Lizard or Land's-end just as channel-bound ships do, but, we think, should also or even rather be looked upon as forming the corner into which autumnal visitants to Great Britain from the north and east are driven by their own migratory instincts in search of more plentiful food or a warmer climate. In this aspect Cornwall may be compared to the pocket of a net spread out over the whole island, in which are caught and temporarily detained, not only the hundreds of Woodcocks which render the county dear to the sportsman, but numerous other birds of various species—all diffident of trying their luck on a further voyage "westward ho!" Consequently the Cornish *ornis* deserves a very close attention from those who wish to study and advance our knowledge of the distribution and movements of British birds. The two little works whose titles are cited below* afford some useful materials towards this desirable end; but, without any wish to undervalue the labours of their respective authors, we must say that many of the statements they contain seem to require more critical examination than has hitherto been bestowed upon them, before they can be thoroughly accepted; and we hope the time may not be far distant when some Cornish ornithologist shall do for his county what Mr. Stevenson has done and is doing for Norfolk. Neither Mr. Rodd nor Dr. Bullmore have, it appears to us, fully appreciated what is required of a faunist in these days; and though we are very grateful to them for their extremely serviceable lists, the manner in which they are drawn up convinces us of the truth of what we have advanced. Each of these gentlemen has kindly sent us a copy of his publication; and to Mr. Rodd we are especially indebted for adding to his copy manuscript notes of considerable value. He is well known as having been a most diligent seeker after rarities;

* A List of British Birds, as a Guide to the Ornithology of Cornwall, especially in the Land's-end District; with remarks on the Capture, Habits, &c. of some of the rarer species. By EDWARD HEARLE RODD, Esq. London and Penzance: 1864. 8vo, pp. 42.

Cornish Fauna, a short account of all the Animals found in the County, with descriptions and remarks on the habits of many of the rarer Birds, Fishes, &c. procured during the last six years. By W. K. BULLMORE, M.D. &c. Part one. *Vertebrata*. Truro: 1867. 8vo, pp. 64.

and his "List," in which the specimens that have found their way to his collection are marked, shows the success which has rewarded him in that character. Dr. Bullmore seems to have taken the field more recently; but we trust he may in time meet with the same good fortune as his fellow-countyman.

All readers of "The Ibis," who have been from its commencement so much indebted to Mr. John Henry Gurney, will be glad to find that his ornithological tastes and zeal are fully inherited by his son, already a contributor to our pages. In the autumn of 1866, *Phalaropus fulicarius* appeared in this island in very large numbers; and Mr. J. H. Gurney, junior, has been at some trouble to collect from various sources the records of its occurrence, publishing the results of his labours in a pamphlet illustrated by a map*. Of course this unwonted immigration was followed by the usual amount of unnecessary and unjustifiable slaughter of the innocent visitors. August 20th was the earliest date on which the species was observed, and October 8th the latest; but the greatest number of victims were destroyed between the 15th and the 25th of September inclusive. Adults as well as birds of the year were obtained, to the number probably of not less than 250 altogether, and chiefly in the south of England.

Mr. Layard's work†, which we have been anxiously expecting for some months past, has, to our joy, at length appeared; and we hasten to tender our thanks to the author for it. We do not intend now to say more about it; for we are promised, by one of our most valued contributors, an extended notice of it, which we hope to include in our next Number. Meanwhile we earnestly recommend our readers to obtain the 'Birds of South

* A Summary of the occurrences of the Grey Phalarope in Great Britain during the autumn of 1866. By J. H. GURNEY, jun. London: 1867. 8vo, pp. 24.

† The Birds of South Africa. A Descriptive Catalogue of all the known Species occurring South of the 28th parallel of South Latitude. By EDGAR LEOPOLD LAYARD, F.Z.S. &c. Cape Town: 1867. (London, Longmans.) 8vo, pp. 382.

Africa,' and make themselves familiar with its pages. We are sure they will find it a most useful work; and they will be able to follow much more satisfactorily the remarks of our reviewer.

2. FRENCH.

In the second volume of the 'Bulletin' of the "Nouvelles Archives du Muséum," our friend M. Jules Verreaux describes and figures three new species of birds. They are:—*Tanysiptera riedeli*, from an unknown locality in the Malay Archipelago; *Myiobius latirostris*, from St. Lucia, in New Granada; and *Centropus lafresnayanus*, from Madagascar. The types of the first two are contained in the Paris Museum; the specimens upon which the last is founded were discovered by the author in the collection of the late Baron de Lafresnaye; but other examples of it have been since obtained on the east coast of Madagascar by M. Grandidier. Prof. Schlegel, however (P. Z. S. 1866, p. 424), considers it identical with the common *C. tolu*.

The Editor of our respected contemporary, the "Revue et Magasin de Zoologie" (1867, pp. 78-80), has done us the honour of noticing and partly reproducing some remarks which, on a former occasion (*Ibis*, 1865, p. 223), we made on the ornithological matter contained in his Journal for 1864. So great is our obtuseness, that we are unable to perceive how they could with justice be considered to be an article "un peu acerbe." We said that M. Marchand's figures of nestling-birds were "somewhat coarsely drawn." This assertion our reviewer does not deny; he only compares them, in this respect, to the representative of a Solan-Gosling which appeared in 'The Ibis' (1866, pl. i.), and says that the plates in his Journal possess "toutes les qualités de la plus grande vérité dans l'aspect des êtres qu'elles font si bien connaître." Whether the comparison is just, we leave fearlessly to the discrimination of ornithologists; but, as we did not then question the fidelity of M. Marchand's plates, we do not quite see why their accuracy should be urged as an excuse for the difficulty attending the artistic delineations of down-clad birds. If we were disposed to be over-critical, we might ask whether it was usual for the hallux in *Pandion*

haliaetus to be placed on the outside of the foot (*cf.* R. Z. 1867, pl. 6), or whether this is a special case of the "formes indécises et vagues," mentioned by our reviewer; but it will be better to cease these amenities and to notice, as we can with satisfaction, the chief ornithological contents of the 'Revue' for the last two years.

In the volume for 1865, besides a series of learned papers on the indications furnished by geology in explanation of the differences presented by existing faunas, in the course of which many ornithological facts are cited, Dr. Pucheran (p. 15) contributes a note on the *Muscicapa tricolor* of Vieillot, identifying it with the *Rhipidura motacilloides* of Vigors and Horsfield ('Tr. Linn. Soc. vol. xv. p. 248), instead of with the *Muscipeta melaleuca* of Quoy and Gaimard (Voy. Astrol. p. 180), as he had formerly (Arch. Mus. vol. vii. p. 357) done. The "Causeries Ornithologiques" of M. Jules Vian are agreeable enough, our old friend *Cuculus canorus* coming in for a large share of them; and this portion we would recommend especially to the notice of Messrs. Dawson Rowley and A. C. Smith. The theory of late chiefly identified by the name of Dr. Baldamus, or something approaching it, seems to be at least a hundred years old, and is said to be met with in Salerne's 'Ornithologie,' a work we may say we have never seen, published in 1767. A curious association of the nests of two birds of very different habits, *Turdus viscivorus* and *Fringilla cœlebs*, is the subject of another of these "yarns" (pp. 131-133); and M. Vian attributes the practice, which he says is constantly to be observed in France, to a desire for mutual protection against the attacks of Magpies. Prof. Bianconi, of whose former studies on the tarso-metatarsus of birds mention has been made in 'The Ibis' (1864, p. 399), furnishes an abstract of his later investigations (pp. 47-49), which result in placing, according to him, *Æpyornis* among the Vultures, a position, as it seems to us, untenable. M. Marchand continues his list of the birds of the Department of the Eure and Loir, as well as the series of figures of nestlings, as has been already hinted, and M. Olph Galliard his translation of Prof. Sundevall's masterly criticisms of Levaillant's 'Oiseaux d'Afrique,' which are known to most of our readers (*cf.* Ibis, 1859, p. 324). There is

also represented M. Galliard's original description of *Ruticilla moussieri*; but, from the silence maintained on the subject, our contemporary is apparently not aware that a good deal of additional information respecting the species has been furnished in the pages of this Journal (*Ibis*, 1859, pp. 307, 416, 1860, pp. 364-367, pl. xi.). To Dr. de Montessus we are indebted for an essay (pp. 369-389), very full of details and illustrated by two plates, on Montagu's Harrier, *Circus cineraceus*, which forms almost a monograph of the species, though we must say we are not entirely satisfied with the account given of the different stages of plumage.

The volume for 1866, besides continuations of certain of the papers above mentioned, and a few other articles of less importance, contains some remarks by MM. Alléon (pp. 273-277) and Vian (pp. 356-359) on the *Aquila mogilnik* of S. G. Gmelin. The subject, we think, requires further elucidation. M. Jules Verreaux (pp. 353-356) describes and figures, as new, *Accipiter lantzi*, from Madagascar, and *Malacoptila castanea*, from Bogotá, the last of which, as we learn from Mr. P. L. Selater, who has seen the type, is a very good species. M. Vian also continues his "Causeries," and treats (pp. 401-410) of the *Anas glocitans* and *A. falcata* of Pallas, respecting the first of which so many mistakes have been made.

3. SWISS.

The Swiss Ornithological Society has published a second instalment of its 'Bulletin'*, which contains matter hardly less interesting than the first, of which we spoke more than two years since (*Ibis*, 1865, pp. 530-532), as the following list of articles will show:—

Sur le grand Corbeau (*Corvus corax*), par G. LUNEL.

Lanius dubius, par le Dr. DEPIERRE.

Mélanges: (I.) le Verderole (*Calamoherpe palustris*),

(II.) le Martinet à ventre blanc (*Cypselus alpinus*), par V. FATIO.

Nidification de l'*Orthotomus longicauda*, par A. HUMBERT.

Suppléments I., II., par V. FATIO.

Extrait des procès-verbaux des années 1865 et 1866.

* Bulletin de la Société Ornithologique Suisse. Tome I. 2^{me} partie. Genève et Paris: 1866. (London, Williams and Norgate.)

Dr. Depierre's *Lanius*, though honoured by a specific name, is considered by him to be only a hybrid between *L. collurio* and *L. auricularis* (*L. rufus*, Temm.); and the plate representing it inclines us to believe that the author is right. M. Fatio's paper on *Calamoherpe palustris* gives some minute characters whereby that species may be distinguished from *C. strepera*, which, as our readers may know, very closely resembles it. We have heard a story of a collector who possesses a skin of one of these two birds that has made the tour of Europe, and has been almost alternately referred to either by each successive ornithologist to whom it has been submitted! May be this story is an exaggeration; but its very existence as a story shows the difficulty of distinguishing between preserved specimens of the two species; and if M. Fatio has succeeded in making the diagnosis clearer, he will have earned the thanks of ornithologists. The "Analyses" consist of some admirable abstracts, chiefly, it would appear, by M. Humbert, of various papers, among which, as was the case before, we are pleased to see several from this Journal. A variety of interesting information is also contained in the "Procès-verbaux" of the Society's Meetings. In conclusion, we venture to suggest to our excellent Swiss brethren that in their next volume the pagination should be consecutive, and not, as in the present, distinct for each part. If they will do us the honour to follow our proposal, we are sure they themselves will speedily find how much more conveniently they can refer to any particular passage they may wish to cite.

4. ITALIAN.

Signor Antonio Riva has published a descriptive manual of the Birds of the Canton of the Ticino*, to which he has added the names of other species alleged to be found in Europe. Of the merits of this work, as a local fauna, we cannot pretend to speak. They easily may, and we would fain hope do, exceed its merits in any other character; for the author does not seem to have made himself acquainted with the more recent emenda-

* L'Ornitologo Ticinese, ossia Manuale descrittivo gli Uccelli di stazione e di passaggio nel Cantone Ticino, coll'elenco nominativo e sistematico di quelli d'Europa e della loro ordinaria dimora. Lugano: 1865. 8vo, pp. 596.

tions in the list of the European Ornis, and many of the errors of Temminck and other writers, which have been constantly exposed, are still copied.

In 1865 was commenced a very magnificent work, having for its subject the birds which breed in Lombardy*, and as its author Signor Eugenio Bettoni. We are very glad we delayed to notice this book; for the first two or three parts of it which came before us were decidedly inferior to their successors which we have now seen, and we can therefore speak in terms of higher praise than would have been possible before. A very considerable number of birds, with their nests, eggs, and nestlings, have already been well figured, and the letterpress has assumed a character far superior to what it at first promised. Some very good remarks on the distribution of birds in Lombardy will be found (pp. 14-16). We were not prepared for the information that *Anthus richardi* is one of the characteristic species of the Lombard plains; it had always been a puzzle to us whence came the examples of this species which so frequently occur in England. We ought to mention that we believe that the cost of publication of this luxurious work is defrayed by the munificence of the Counts Turati, whose grand collection it serves to illustrate.

Signor Gaetano Cara, the Director of the Royal Museum at Cagliari, has very kindly forwarded us a copy of a pamphlet† in which he reviews, and, in some cases very severely, comments on Dr. Salvadori's 'Catalogue of the Birds of Sardinia,' noticed by us some years ago (*Ibis*, 1865, p. 225), wherein that author made certain observations on, and corrections of, the 'Ornitologia Sarda' published by Signor Cara in 1842. We have here neither space nor, we must confess, inclination to follow Signor Cara

* Storia Naturale degli Uccelli che nidificano in Lombardia, ad illustrazione della raccolta ornitologica dei fratelli ERCOLE ed ERNESTO TURATI. Scritta da EUGENIO BETTONI. Con tavole litografate e colorate prese dal vero da O. DRESSLER. Fascicoli i.-xv. Milano: 1860-67. (London, Williams and Norgate.) Folio.

† Osservazioni di GAETANO CARA al Catalogo degli Uccelli di Sardegna pubblicato dal Dottore TOMMASO SALVADORI. Cagliari: 1866. 8vo, pp. 152.

through his elaborate defence of the statements and opinions originally put forth by him, and controverted by Dr. Salvadori. The former has, we believe, resided in the island for a great many years, while the latter only visited it for a few months; but we cannot, on that account, agree with Signor Cara in holding cheap almost every assertion of Dr. Salvadori, who, as we have good reason to know, is a very keen observer, and who appears to us on certain disputed points to be quite right. In many cases Signor Cara seems to have taken offence at his own statements being reproduced in other words by Dr. Salvadori, and appears unable to brook the fact of a stranger having ventured to write on the ornithology of what he considers to be his own peculiar domain.

5. GERMAN.

We have already briefly noticed (*Ibis*, 1867, pp. 245-246) Dr. Hartlaub's Introduction to the work on the Ornithology of Central Polynesia, on which he and Herr Otto Finsch have been for some time engaged. The book has since been completed* and entirely fulfils our anticipations of it. It is one of the most valuable contributions to our knowledge of geographical ornithology that has recently appeared, and adds largely to our still imperfect acquaintance with the Polynesian Fauna. The materials on which it is based are chiefly furnished by the rich zoological collections formed for a much respected merchant of Hamburg, Herr Johann Cesar Godeffroy, by Dr. E. Gräffe, of Zurich, in the principal islands of the Feejee and Samoan groups, and in Uea, or Wallis's Island. The authors, however, have incorporated into their work all previously recorded information on the same subject, and, as the titlepage shows, have likewise enlarged its scope so as to include the Tonga group, which has not yet been visited by Dr. Gräffe, and, in fact, has been little explored since the days of Cook. The result is an admirable treatise on the avifauna of a region concerning which no connected account previously existed.

The elaborate Introduction deserves a fuller notice than we

* Beitrag zur Fauna Centralpolynesiens. Ornithologie der Viti-, Samoa- und Tonga-Inseln, von O. FINSCH und G. HARTLAUB. Halle: 1867. (London, Williams and Norgate.) 8vo, pp. 290.

were before able to give, and enters very thoroughly into the peculiarities of Pacific ornithology, which is characterized, and that strongly, by the presence of such remarkable forms as *Tatare*, *Erythrura*, *Leptornis*, *Sturnoides*, *Aplonis*, *Didunculus*, *Serresius*, *Phlegænas*, *Chrysæna*, and *Prosobonia*. Our earliest authorities on this avifauna are the naturalists who accompanied Cook on his first and second voyages, and after them the French scientific expeditions of the 'Astrolabe' in 1836, and of the same ship and the 'Zélée' during what is commonly called the "Voyage au Pôle Sud." But the most considerable increase of our knowledge in this respect is due to the United States' Exploring Expedition under Commodore Wilkes. The naturalists attached to this enterprise, Messrs. Peale and Pickering, obtained no less than fifty species of birds in the islands to which our authors devote their attention. Lastly, in 1859, Mr. G. R. Gray published his 'Catalogue of the Birds of the Tropical Islands of the Pacific,' which supplies us with a general index to previous ornithological observations in this part of the world, and with many new localities furnished by specimens in the British Museum.

From these authorities, and from Dr. Gräffe's recent investigations, we are now acquainted with about one hundred species of birds found within the limits to which our authors have restricted themselves. Of these, 59 are met with in the Feejees, 48 in the Samoans, and 31 in the Tonga or Society Islands, while 18 seem to be peculiar to the first group, 14 to the second, and 4 to the third.

The general character of the Central-Polynesian avifauna may be learned from the fact that, out of these 100 species, 37 are also common to Australia, among which are found such well-marked generic forms as *Platycercus*, *Ptilotis*, *Monarcha*, *Myiagra*, *Myzomela*, and *Pachycephala*; while, on the other hand, as in Australia also, the *Picidae* and *Bucerotidae* are entirely wanting. The two best-represented groups in central Polynesia are the *Muscicapidae* with 12, and the *Columbæ* with 11 species. Very many other interesting details are also given in this Introduction, which concludes with a carefully compiled Table of the birds of Polynesia generally, including altogether 172 species.

The main portion of the volume which succeeds furnishes us with a special account of the several birds of the Central-Polynesian avifauna. Each of them is succinctly described in Latin and German; and very full particulars of its synonymy, range, and other attributes are given. All this information has evidently been collected and put together in the most careful and conscientious manner; and notes upon the conjectured occurrence of other species, and many incidental remarks, worthy of the reader's attention, are likewise added.

Fourteen coloured plates illustrate some of the most interesting novelties in eggs and birds described in the work. They form the portion of it on which we can dwell with the least satisfaction. It is true that the drawing is generally very fair; but the plates are harshly printed, and the colouring (we fear we must use the only word which will fitly describe it) is daubed. The figures of eggs are especially failures in this respect, and are entirely wanting in character, which is the more to be regretted as many of them belong to genera of which the eggs were hitherto quite unknown. This defect, however, is really the only fault we can find with the volume—though we may regret that it is not accompanied by a map of those groups of islands to which it particularly relates. Were this little addition made, it would be one of the most perfect ornithological works with which we are acquainted.

Dr. Julius Hoffmann has published a very good monograph on the Woodcock * (*Scolopax rusticola*) which shows that he has devoted himself to the subject with equal success as a naturalist and a sportsman. He first gives a long and detailed description of the bird, particularly directing attention to a curious peculiarity of its bill, the upper mandible of which is capable of voluntary upward movement—a property that seems to have hitherto almost entirely escaped notice, but now sufficiently well established, and illustrated by a woodcut. He then treats of the perplexing variations which, as all sportsmen know, exist in the size, weight, and colour of individual examples, and

* Die Waldschneffe. Ein monographischer Beitrag zur Jagdzooologie, von Dr. JULIUS HOFFMANN. Stuttgart: 1867. 8vo, pp. 151.

gives a schematic table in which these variations, as observed in a series of nearly forty specimens, are rendered very apparent, and serving to show that they are not dependent upon sex. Dr. Hoffmann is a strong supporter of the doctrine of the "unity of the species" as regards the European Woodcock; and we must say we quite agree with him. He afterwards considers in detail the habits, food, and mode of propagation of the bird. As to the exact manner in which Woodcocks carry their young to and from the feeding-grounds he is still in some doubt. We have ourselves had no experience in the matter; but a friend of ours assures us it is effected by the parent grasping the young between the tarsi, and holding at the same time the bill downwards and backwards under the young bird. A couple of chapters are appropriated to the geographical distribution and migration of the species, and to an account of the localities in which it passes the winter, while another couple or three are almost entirely taken up with sporting-matters. From old records the author shows that Woodcocks have sensibly decreased in number, owing, he says, to the extension of cultivation, the greater perfection of firearms, and the growing value of dead game through increased facilities of transport. Finally the American species (*Scolopax minor*) is considered, much in the same manner, but at less length than the European, and chiefly from Audubon's writings; and thus ends this very good monograph on the natural history of "Timber-doodles."

6. DUTCH AND BELGIAN.

The ninth portion of the Catalogue of the Leyden Museum* has followed its predecessor with gratifying speed. It contains the conclusion of the *Anseres*, the *Coraces*, and the *Urinatores*. The *résumé* of the first shows that, according to Prof. Schlegel's ideas, the group is represented in the Museum by 1225 specimens, of which no less than 91 are skeletons and 1085 are mounted skins. The next group contains 1530, of which 113 are osteological specimens,—and the last 419, of which 48 are osteological specimens. We feel called upon to remark, with

* Muséum d'Histoire Naturelle des Pays-Bas, par H. SCHLEGEL. 9me livraison. Leyden: 1867. (London, Williams and Norgate.)

all deference to the author, that we think he is entirely mistaken in placing the genera *Coracias*, *Brachypteracias* and *Eurystomus* in the same group with the *Corvidæ* and *Oriolidæ*—themselves perhaps not very nearly related; and we suspect that such a classification will satisfy few ornithologists nowadays. *Cyanocorax bellus* (p. 50) is, as we are informed by Mr. Selater, specifically identical with *Pica mystacalis*, Geoffroy (Mag. Zool. 1835, pl. 34), and is the *Cyanocorax uroleucus* of Heine (J. f. O. 1860, p. 115). Prof. Schlegel gives no reason for assigning it a new name. Holding the opinions as to specific identity which he is known to do, it is not a matter of surprise to us to find that he “lumps” together the eastern *Cyanopica cyanea* with the western *C. cooki*, nor the Syrian *Garrulus melanocephalus* with the Algerian *G. cervicalis*, though he allows, by the way, *G. krynicki* to be distinct. Mr. Tristram has in this Journal (*Ibis*, 1866, pp. 61, 62) so perspicuously shown the diagnostic characters of these last three forms, as well as how the confusion in their nomenclature arose, that we cannot but think it is highly advisable to keep them separated. Speaking of the Blue Magpies, Prof. Schlegel admits that the differences between them are “bonnes à indiquer,” though he considers them “de trop peu d’importance pour autoriser la séparation spécifique de ces oiseaux.” Will he kindly tell us what differences are sufficient for his purpose? We can assure him that we, and a good many other ornithologists also, shall gladly receive any such information as will enable us to draw a “a hard and fast line” between two nearly allied species. Meanwhile we think we must be content with constant *differentiæ*, even if they are but slight; and if they be coupled with distinctness of habitat, we must not only be content but gratefully receive them as specific characters.

Among his *Urinatores*, Prof. Schlegel, following the usual arrangement, places *Heliornis*, including *Podoa* and *Podica*. This is an assignment to which we must demur. Dr. Jerdon mentions (*B. Ind.* iii. p. 721) that the skeleton is quite that of the *Rallidæ*; while the opinions of Mr. Blyth and Col. Tickell (*J. A. S. B.* xxviii. pp. 415 and 455)—the latter of extreme value as embodying the author’s experience of the habits of *Podica personata*—point to the same alliance.

There is one thing for which we must express our thanks to Prof. Schlegel. This is the first *livraison* of his useful 'Catalogue' in which he has been allowed by his publisher to consult the convenience of readers so far as not to leave a group incomplete. We trust he will continue this excellent plan in future. It was too bad for his publishers, whatever may have been their motive for so doing, to make him break off in the middle of a sentence, as used to be the case, and let the purchaser wait for half a year or more for it to be finished.

Herr O. Finsch's excellent Monograph on the Parrots, of which the first volume* has appeared, having been published in Holland, must here be regarded as a Dutch work, though written in German. We shall abstain at present from giving an abstract of its contents; for we believe we may shortly expect the second volume, when we hope to return to its consideration. Meanwhile let us say that, though in some details we may not altogether agree with the author, we can confidently recommend this work to our readers. From nearly every possible point of view the *Psittaci* are most admirably treated, and all collateral subjects most elaborately handled.

The 'Archives Cosmologiques' of M. Dubois continue to add to the bewilderment of the Ornithologist. The second number contains a "Note sur le *Plautus impennis*" by the Editor, in which are repeated several assertions respecting that species which have been more than once shown to be unfounded; but the plate which accompanies the article represents the two very fine specimens of its eggs, the property of M. Demcezenaker, formerly mentioned in this Journal by M. Olf-Galliard (*Ibis*, 1862, p. 302). The figures appear to be drawn somewhat larger than the natural size, though, not having seen the originals, we cannot be sure as to this point. Under the name of *Tanagrella dubusi*, in the fourth number, M. Dubois describes and figures, as a new species, a bird which Mr. Selater assures us is identical with the *Chlorochrysa calliparia* (Tschudi) of Ecuador (*Cat. Am.*

* Die Papageien, monographisch bearbeitet von OTTO FINSCH. Erster Band. Leiden: 1867. (London, Williams and Norgate.) 8vo, pp. 361.

B. p. 61); and from that gentleman's knowledge of American ornithology we have every confidence in the statement.

7. NORWEGIAN AND SWEDISH.

The Whale Islands, a group of variously-sized rocks lying off the southern limits of Norway, are the field which has been last investigated by Herr Robert Collett, of Christiania, a young naturalist of much promise; and he has published a short but sufficiently complete account of them from a biological point of view*, in which is included a list of their Fauna and Flora, with notes on the various species mentioned. As might be expected, from the proximity of these islands to the mainland, the birds occurring on the former, to the number of nearly two hundred species, are almost the same as those which are commonly found on the latter; but one or two stragglers that do not seem to have been observed on the mainland have been met with on the islands. Still this little publication is not without its use for inquirers into the geographical distribution of species, and it will add to the reputation of its author.

The second volume of the 'Handbok i Zoologie' of HIL. Widegren and Holmgren, comprises the first part of an account of the Birds of Scandinavia by the zoologist last mentioned†, which is very fairly executed. As a popular work on a scientific subject, we only wish we had one in this country as good; for it certainly may be favourably compared with many books of far greater pretensions which have been produced for the benefit (?) of English readers.

A work which claims to be, so far as the author knows, "the first attempt to bring Oology into system—the first attempt to treat that part of zoology scientifically," certainly

* Zoologisk botaniske Observationer fra Hvaløerne af ROBERT COLLETT, Stud. jur. Christiania: 1866. 8vo, pp. 83.

† Handbok i Zoologie för Landtbrukare, Skogshushållare, Fiskerödare och Jägare. II. Delen. Skandinaviens Föglar af AUG. EMIL HOLMGREN. Förra Häftet. Stockholm: 1866. 8vo, pp. 434.

demands our attention here. Such a work is one lately published by Herr Westerlund*; and the passage we have cited is a translation of part of the opening sentence of the preface. Had the author been aware of the existence of M. Des Murs's 'Oologie Ornithologique,' which several years ago was fully reviewed in 'The Ibis' (1860, pp. 325-335), he would of course have qualified his assertion still more; for the scope of the present work seems to be much the same as that of the French Oologist, though this last treats the subject generally, while the book under notice is restricted, as its title shows, to the birds of Sweden and Norway. M. Des Murs separated eggs into six categories, according to their form; but Herr Westerlund is content to establish four, namely, (1) Ovate (*ovata*), (2) Oval (*ovala*), (3) Pear-shaped (*päronformiga*) and (4) Spindle-shaped (*spolformigt*). We must confess we do not see the great advantage to be derived from pursuing this method, though we acknowledge that too much importance is often attached by oologists to colour as a character. The work is certainly carefully and conscientiously written—the author says he has been nine years about it; but there are a few statements in it which we cannot accept as facts, and he is not always correct in the derivations he gives for the scientific names of birds, as witness *pomarinus* and *Phalaropus*.

8. AMERICAN.

The 'Annals' of the New York Lyceum contain two more papers by Mr. G. N. Lawrence, in the first of which nineteen American birds are described as new, namely:—*Euphonia purpurea*, from an unknown locality, said to be allied to *E. violacea*; *Buarremon flavovirens*, from Ecuador, *Pitylus humeralis*, from New Granada; *Philydor virgatus*, from Costa Rica, making the third species of the genus now observed north of the Isthmus of Panama; *Thamnophilus tenuifasciatus*, from the Rio Napo, and *T. nigrescens*, from Venezuela, both belonging to the same

* Skandinavisk Oologi. Utbredning, Bo och Ægg af Sveriges och Norges foglar, jemte Ornithologisk Exkursions-Fauna af CARL AGARDH WESTERLUND. Stockholm: 1867. (London, Williams and Norgate.) 8vo, pp. 250.

group as *T. doliatus*; *Myiodynastes superciliosus*, from Costa Rica, allied to *M. chrysocephalus*, Tschudi, and no doubt the *Hypermitres chrysocephalus*, from the same country, of Dr. Cabanis (J. f. O. 1861, p. 246), who then noticed the difference between the Costa-Rican and Peruvian examples; *Aglaactis olivaceocauda*, from Eastern Peru, which Mr. Salvin assures us, from a comparison of the types, is identical with *A. caumatonota*, Gould; *Helimaster spectabilis*, from Costa Rica, which the same gentleman informs us is the female of a species of *Eugenes* and possibly of (though the bill is decidedly longer) *E. fulgens*, a bird however which has not yet been known to occur in that country; *Passerculus guttatus*, from Lower California; *Zonotrichia melanotis*, *Coturniculus mexicanus*, *Hadrostomus albiventris*, and *Ortyx graysoni*, all from Western Mexico, of which the first is possibly the same as *Hæmophila humeralis*, Cabanis, the second probably identical with *Peucæa botteri*, Sclater, while the third is one of the many forms of *Hadrostomus aglaia*, Lafr., and, like *H. affinis*, Elliot, perhaps hardly to be considered distinct, the fourth is allied to *O. pectoralis*. The remaining species noticed in this paper are named by Prof. Baird, and are:—*Saltator plumbiceps*, from Mazatlan; *Pheucticus tibialis*, from Costa Rica; *Spermophila atriceps*, from Mazatlan, allied to *S. torqueola*; *Pyrgisoma xantusi*, from Western Mexico, the description of which, Mr. Salvin tells us, fits very well a specimen recently sent by M. Boucard, but apparently identical with *Melozona rubricata*, Cab. (Mus. Hein. i. p. 140, & J. f. O. 1866, p. 234), if not the true *Pyrgisoma keneri*, Bp.; and, finally, *Dendronis mentalis*, from Western Mexico, allied to *D. eburneirostris*.

Mr. Lawrence's second paper contains descriptions of three Humming-birds, all from Costa Rica:—*Doricha bryantæ*, allied to *D. evelynæ* and *D. elizæ*; *Oreopyra venusta*, which Mr. Salvin, after seeing the type lent to Mr. Gould by Mr. Lawrence, assures us is identical with *O. calolema*; and *O. cinereicauda*, allied to *O. leucaspis*, but having a grey instead of a steel-blue tail.

Mr. Cassin's 'Third Study of the *Icteridæ*' has given rise to a most elaborate paper in the 'Proceedings' of the Phila-

delphia Academy for April 1867, in which all the remaining species of the family known to the author are minutely and comparatively described. Among them, five are given as new—*Icterus graysoni*, *I. sclateri* (= *I. mentalis*, Selater, Cat. Am. B. p. 134, nec Lesson), *I. salvini*, and *I. grace-annæ*. We could have wished that Mr. Cassin had bestowed on this last a specific name according to the letter less, and according to the spirit more graceful.

On a former occasion (Ibis 1867, p. 126), we remarked on Mr. Lord's observations regarding the asserted provident habits of *Melanerpes formicivorus*. He ('Nat. in Vancouver's Island,' i. pp. 289-292) doubted the Woodpecker's ever feeding on acorns in winter; and it appears he is right in doing so. But still it would seem that the Woodpeckers do store up the acorns for all this; and the reason why is very interesting. It is thus given by Dr. C. T. Jackson in the 'Proceedings' of the Boston Society of Natural History (vol. x. p. 227).

"On the 4th of June I made an examination of the acorns which the Californian Red-headed Woodpecker so abundantly inserts into holes made in the bark of trees. Knowing that the bird is insectivorous, I did not believe the common opinion that the acorns were eaten by Woodpeckers. The acorns are always driven into the holes made to fit them, cup-end foremost, so that the pointed end only is exposed to view. They are packed in so tightly that it is difficult to extract them without the aid of a knife. On getting out some of these acorns, I found in them only the worm which had eaten up the kernel of the nut. Thus it would appear that the Woodpecker is able to select the infested acorn in which there is a minute and almost invisible egg, and puts the acorn into a hole in such a manner as to prevent the escape of the worm when it comes to maturity: as the worm can only cut through the softer portion of the shell at its base and not through the hard pointed end, so it is securely imprisoned until the Woodpecker calls for it. Since there must be a limit in time as to the procuring of the infested acorns and to the existence of the worms in the nuts, and a sudden harvest of the worms would be obtained at a particular

time in the year, it seems probable that these birds lay up this store of food for their young, which must require a large supply of animal food ; for it has been shown by Dr. Treadwell that a young Robin eats about its weight of worms *per diem*.

“Although Woodpeckers are not gregarious, living in pairs and not in flocks, they in this case, from necessity, have to act on community principles ; for it would be difficult for any one of the birds to identify and defend his particular property, and the worm-harvest must be open to the whole community. Here, then, we have a fine example of instructive *prévoyance* in birds, and of provision made for their young. Every year millions of acorns are nicely packed into holes in the bark of trees, and even in the wooden ceilings of the porticoes of houses, where a crack enlarged is made capable of receiving an acorn. A lady told me that every morning during the acorn-season it seemed as if a hundred carpenters were at work hammering in the verandah of her house, so loud were the strokes of the Woodpecker’s beak.”

9. AUSTRALIAN.

We had not anticipated that we should so soon have to announce the publication in Australia of an illustrated work on the ornithology of that country. Such, however, is now our pleasing duty ; and it is a noteworthy fact that Queensland, the youngest of the sister colonies, produces the subject of our present remarks*. The author’s intention, as announced in his Prospectus, is “to place within the power of all who wish to obtain it, an accurate and useful book of reference at as low a cost as will allow of its being published in a creditable manner.” In the Ten parts now before us, this intention is most satisfactorily carried out. Each part contains six coloured plates, on which are in most cases very fairly depicted one or more birds or parts of birds ; for Mr. Diggles, being desirous of having as many as possible of his figures the size of life, in many cases contents himself with a representation of the heads and shoulders only of his subjects. The letterpress might easily be fuller.

* The Ornithology of Australia. By SYLVESTER DIGGLES. Brisbane, Queensland. Imp. 4to, parts I.-X.

The Seventh Part contains a figure and description of a new Owl, *Strix walleri*, allied to *S. delicatula*, but much larger, of which Mr. Diggles says :—

“This fine new species of Owl is now figured for the first time ; and it is with much pleasure I name it after the discoverer, Mr. Eli Waller, of Brisbane, to whose large and valuable collection I am so much indebted for most of my figures, and to whose scientific and extensive practical knowledge of the birds of Australia, and energy and perseverance as a collector, I am happy to bear testimony. It does not often happen in a country so well searched as Australia, since the visit of Mr. Gould in the years 1838, '39, '40, that so important and interesting a bird as the present is brought to light ; and the fact of this new species having been shot in the immediate neighbourhood of Brisbane, may serve to encourage others interested in the study of ornithology (more especially in the newly settled districts, where novelties are mostly to be looked for) to endeavour to add their contributions to the very numerous and interesting fauna of their adopted country. Two specimens (a male and female) are in Mr. Waller's collection.”

Concerning that rare species *Falco subniger*, Mr. Diggles adds somewhat to our information. Mr. White and others have obtained specimens in South Australia, and Mr. Waller has shot one near Brisbane. This last gentleman subsequently saw another chased by a *Haliastur sphenurus*, which drove it off.

Mr. Diggles's undertaking deserves every encouragement. The parts of the work are published monthly, and cost only ten shillings each : their number, he believes, will not much exceed forty ; we trust that of his subscribers will be many times as large.

XI.—*Letters, Announcements, &c.*

WE have received the following letters addressed “To the Editor of ‘The Ibis.’” :—

Dobroyde, May 20, 1867.

SIR,—I have lately shot adults and young of *Pardalotus affinis*, var., with a deep orange or red spot on the spurious wing. Both young and old birds have exactly the same coloured spot.

They were shot both together while the old bird was feeding the young one. I have also what I believe to be the young *P. affinis*, with the spurious wing light yellow.

Mr. Gould, in his 'Handbook to the Birds of Australia' (i. p. 162), has misunderstood what I have said in 'The Ibis' (1865, p. 298), and shifts my remarks on *P. affinis* from that species to *P. striatus*, to which they do not apply. There are two distinct forms of *P. affinis*—one with a yellow tip to the spurious wing, and the other with a deep orange or red tip. Both are usually common, but at some seasons one or the other predominates in certain localities. As mentioned above, I have got both old and young of the red-tipped form, and what I believe to be the young of the other; so that I have only to get a yellow-tipped adult, with a nest, and the matter will be cleared up. If the young of the yellow-tipped form have red on the spurious wing, then it must of course be considered a mere variety; but if otherwise, surely a different species.

Mr. Gould talks of *P. striatus* being the common Sydney species. This it is not; nor do I ever remember having even heard of this bird being found near Sydney. *P. affinis*, in its two forms, is found here. It breeds in holes of trees, and, as I have before mentioned (Ibis, 1866, p. 126), also takes possession of the old nests of the Fairy-Martin. In like manner *P. striatus* was one year found by me breeding in the nests of the same bird at Cardigan, on the Bell River.

P. punctatus and *P. melanocephalus* breed in holes dug in banks; but on one or two occasions I have known them to breed in holes in logs on the ground.

I am &c.

EDWARD P. RAMSAY.

South African Museum, Cape Town,
August 13, 1867.

SIR,—At this *Ultima Thule*, the arrival and departure of our migratory birds has always seemed to me to possess peculiar interest. I have endeavoured to note their dates, but, dwelling in a town as I do, I find my opportunities limited. I believe, however, I was so fortunate as to observe the first arrival this

season of *Cypselus apus*. I was returning from a visit to a brother "Ibis," Captain Sperling, of H.M.S. 'Raccoon,' on the 3rd inst., and, while on the road from Simon's Town, I saw a large flock of Swifts wheeling round and round at a very great height. In the clear air of the early morning I could distinctly make out that the species was not *C. melba*. It may have been *C. caffer*; but my conviction, the more I think of it, is that they were all *C. apus*. I have not seen any since that date. Whither have they gone? were they only here on a tour of inspection? what small insects frequent these immense altitudes to tempt them? I hope our friend Mr. Andersson, who is a long way up the west coast, somewhere about the Cunene River, may have noted their passage. Could not a series of lines of observation be established by means of your correspondents for noting the passage of migratory birds? We might get some proximate observations at last. I could command the whole of the southern extremity of Africa; as there are many observers all along the coast as far as Natal who will gladly help me.

I may add that I saw a single *Hirundo rustica* on the 27th July, and another on the same day as the Swifts just mentioned. Our looked-for usual flight of Quails has not yet arrived thus far, though I have heard of them in limited numbers to the eastward these three weeks or more.

My 'Birds of South Africa' were hatched last week. I have directed my publisher to send you a copy. Don't spare the blunders in it, Mr. Editor! Cut them up. I wish the book to be of use; and to perpetuate an error is not being useful. I am going to have the first shot at it; and so here goes. The bird described as *Graculus carbo* (No. 698) is not so, but *G. lucidus* (Licht.) (Schleg., Mus. P.-B. *Pelecani*, p. 12). Still, unless I am much mistaken, we have *G. carbo* also, or its ghost! The specimen from which my description (B. S. Afr. p. 380) was taken was identified in England as *G. carbo*; but the other day, on my visit to Capt. Sperling, we had a cruise in Simon's Bay to shoot sea-fowl for the museum. Capt. Sperling shot, from a lot of Cormorants congregated at the top of the Noah's-ark Rock, a bird which, on being lifted into the boat, I instantly

pounced on as new to me, or in a phase of plumage which had never occurred to me. My next shot brought home a *G. capensis*, and then I felt sure that our first was new. On my return to the ship I went to book, but could not find described a stage of plumage quite that of our specimen. Next day we saw, sitting on a buoy near the Admiralty-jetty, a bird in the full plumage of *G. carbo*, with the white spot on the thigh very visible, and a bird in the young state. I did not like to fire at them, so near the houses and dockyard; but both Capt. Sperling and I agreed that they were *G. carbo*. When I reached home I compared my specimen with that described in my book, as above mentioned, and to my astonishment found I had certainly a distinct species. More than this, I found that during my absence in England last year my son had shot another, probably at Kalk Bay, near Simon's Bay, had detected the difference, and had had it mounted; but, owing to the crowded state of our shelves, it had been put out of sight and forgotten. While hunting up information, I came on Prof. Schlegel's description of *Graculus lucidus* (Licht.), which accords with my "No. 698." One marked difference between the two birds is in the number of rectrices, of which there are 14 in *G. lucidus* and 12 in my *G. carbo*, though I see that Macgillivray (Hist. Br. B. v. p. 380) gives this species 14 also*.

Of one thing I am certain, *Graculus carbo* is only a late arrival in this country. I have often been out on False Bay and along its shores, and never saw one, or anything like one, before; I am sure it is not yet in Table Bay. I have had a look round, and only the two usual species *G. lucidus* and *G. capensis* are to be seen. Is this another instance of a species extending its limits? Is it a migration for temporary reasons, or will it be permanent? At all events I wish to record its first appearance here and to correct an error in my catalogue.

Yours faithfully,

E. L. LAYARD.

* [We believe that Macgillivray is right, and are inclined to suppose that the specimen referred by Mr. Layard to *G. carbo* must belong to some other species.—ED.]

National Museum, Melbourne,
28th August, 1867.

SIR,—In 'The Ibis' for April last (pp. 255, 256) you refer to Mr. Ramsay and myself having given different names to one *Pardalotus*: his description, you say, was read at the Meeting of the Zoological Society of the 28th February, and mine published in the March number of the 'Annals of Natural History.' Permit me to inform you that the specimens described by Mr. Ramsay were not sent to him until after I had published a description of the species in the 'Australasian' newspaper of Melbourne; and Mr. Ramsay told me he wrote to Dr. Sclater to suppress his name and description. The specimens described by me have been for some years in the Museum here as a new species.

I have the honour to be, Sir,

Your most obedient servant,

FREDERICK M'COY.

. We are somewhat surprised to find a naturalist of Professor M'Coy's experience describing a new species in a newspaper. A more pernicious practice could not be established, if others were to follow his example. That there have been some cases of the kind in various parts of the world we are well aware; but we never heard them spoken of except as unpardonable, and we cannot imagine that, on reflection, our learned correspondent would be inclined to regard his own as defensible. If *Pardalotus xanthopygus* had been properly described in an Australian newspaper, it was no longer a "new species," and was, therefore, improperly described as such in the 'Annals,' where (3rd ser. xix. p. 184) we find no mention made of any prior description. Mr. Ramsay's withdrawal of his description we consider to be very handsome; for by the suppression of the name he gave to the species, ornithologists are spared a useless synonym; but we must say that in the opinion of many good authorities Mr. Ramsay's name would have been preferred had he allowed it to stand.—ED.

H.M.S. 'Nassau,' Rio de Janeiro.
September 1867.

SIR,—In a letter which I had the pleasure of receiving from you nearly a year ago, when I announced to you my intention

of proceeding to the Straits of Magellan in the capacity of naturalist to a Surveying Expedition, you expressed a wish to hear from me occasionally during the time of my absence from the United Kingdom. I have long had it in my mind to write to you; and now that we have spent one season in the Straits, and before long shall be beginning another six months' work there, I put the intention into execution. We left Plymouth on the forenoon of the 8th September, 1866, but soon encountered such a severe gale that, after vainly attempting to run into Brest, we were obliged to return to our starting-point on the 10th, and remained at anchor in Plymouth Sound till the evening of the 17th, when we again set forth, and, after a rough passage, reached Madeira on the 25th. Here we remained lying in the Bay of Funchal until the evening of the 2nd October; but I saw much less of the lovely island than I could have wished, owing to our being placed in quarantine during the first five days of our stay, so that I had only two opportunities of landing, on the second of which I had a glorious ride up to the Grand Curral. I noticed numerous Gulls and Terns flying about Funchal Bay, but they all appeared to belong to British species; and the results of dredging for marine animals were of a similar nature, the greater number of the Mollusks obtained being species met with on the south coast of England. I need scarcely say that we were accompanied on our passage between England and Madeira by numerous Stormy Petrels; and these pretty little creatures were our constant associates alike in calm and stormy weather on the voyage till we got to the south of Rio de Janeiro, when we lost them. On leaving Madeira we next shaped our course for St. Vincent (Cape Verd), where we arrived on the 9th of October. On our way there we had a variety of customary oceanic sights, which, however, were new and interesting to me, such as shoals of flyingfish, wonderful displays of phosphorescence, not to speak of the occurrence of various insects at a great distance from land. The weather was extremely hot at St. Vincent; but I had one or two interesting excursions, and was pleased to find the island much greener than is usually the case, owing to recent heavy rains. By Mr. Miller, our Consul, from whom I had a kind reception, I was informed

that 27 species of birds are to be met with on the island ; and I made particular enquiries as to whether the St. Jago Kingfisher occurred there, but was told that it was limited to the islands of St. Jago and Fogo. I myself saw very few species of birds, but had my first view of Egyptian Vultures in the wild state, considerable numbers of the young birds in their dark plumage, and of the old ones in their black and white attire, soaring about in the air or perched on hillocks. Guinea-fowls were at one time plentiful, but are rapidly approaching extinction. The next place we visited was Rio, where we arrived after a voyage of three weeks, in the course of which but little worthy of note occurred, Swallows making their appearance, or being heard occasionally, and a solitary Tropic-bird being seen. During our ten days spent there I took numerous walks in the neighbourhood of the harbour, and saw much to interest me in the way of plants and insects, but comparatively few birds. Gulls, Terns, Brown Gannets, and Frigate-birds were constantly to be observed flying about, the latter soaring high in the air and opening and shutting their long forked tails. Brown Vultures were also seen in numbers on land. From Rio we proceeded southwards to the Plate, reaching Monte Video on the 23rd of November, after having experienced two severe gales, in the course of which we saw numerous Petrels and Albatroses. An attempt was made to procure specimens of the latter by fishing for them with a line and hook baited with a piece of pork, but without success. At Monte Video I noticed a variety of small birds, several *Muscicapidae*, and so forth, and a Spur-winged Lapwing. On leaving Monte Video we spent a single day at Maldonado, which seems to be a rich locality for birds in general, large and small. A small Burrowing Owl was abundant on the undulating plains, and was frequently seen perched on a low bush and giving vent to a loud drumming sound ; and an Ibis with sooty-black plumage was shot in a marsh. We entered the Straits on the 21st of December, and, with the exception of a short trip to the Falkland Islands to provision and call, remained there until the 12th of June. During our stay in the Straits, which was very interesting, I collected a good many specimens of birds, and did what I could in the way of observing their habits. The following

brief remarks on the birds of the Straits, as you will see, are sadly wanting in precision as regards the names of species, owing to my not possessing any book that gives anything but the most meagre information on the subject ; possibly, however, they may be of some interest to you, such as they are. I may begin by remarking that by far the most numerous birds, as regards *individuals*, are Cormorants, and as regards species are the birds of prey.

The Condor (*Sarcoramphus gryphus*) I met with first at Cape Possession, considerable numbers of this magnificent bird nesting on ledges of the high cliffs in this locality. I obtained seven or eight species of *Falconidæ* from various localities ; and of these the Carrancha (*Polyborus brasiliensis*) was one of the most plentiful. The Tucú-tucú (*Ctenomys magellanicus*), which exists in great abundance on the open plains, affords the staple article of diet to this bird and several other species of the family. Of *Strigidæ* I procured four species. The largest of these, a very handsome bird with soft mottled-grey plumage, and measuring about twenty inches long, I saw first in the wooded country in the vicinity of the Chilian settlement of Sandy Point ; and subsequently I met with other examples in the open country about Gregory and St. Jago bays, having several times observed it flying about in search of prey. A single individual of a second species, with plumage beautifully blotched with yellow and brown, was shot on board when we were lying in Philip Bay, Fuegia. A third, which seems to be much the commonest species in the eastern part of the Strait, where our work lay last season, was frequently seen on the beach, apparently feeding on mollusks and other marine animals. The fourth, a very pretty little creature, between six and seven inches long, occurred at Sandy Point, three specimens having been shot during one of our visits there. A single specimen of what seems to be a species of Shrike was obtained at Possession Bay, and specimens of a grey Flycatcher were shot at Sandy Point and Port Famine. Two specimens of *Hirundo* were tolerably plentiful in the neighbourhood of the former locality, flying over open ground near the sea ; and in the meads the Creeper (*Oxyurus lupinieri*) was abundant and most familiar in its habits. *Scytalopus magellanicus* I saw both at

Sandy Point and Port Gallant ; and at the latter place its sharp note was almost the only sound that broke the death-like stillness of the woods. One or two species of *Furnarius*, or some closely allied form, were met with in the open country ; and what seems to be a small species of *Synallaxis* was shot on Sandy Point. In the woods two species of Woodpecker occurred—the larger (*Picus magellanicus*) in greater numbers than the smaller one, of whose name I am ignorant. A long-tailed Green Parakeet was also very plentiful, flying in small flocks and attracting attention by its shrill cries. A Red-breasted Starling (I suppose the *Icterus militaris*) was common in the open country about Gregory, St. Jago, and Possession Bays ; and a black *Icterus* was met with at Sandy Point, and Port Famine. A Kingfisher was shot at Port Gallant ; and I procured specimens of one or two species of *Sylvicolidæ* and *Fringillidæ* from various localities. In the neighbourhood of Peckett Harbour I obtained specimens of two curious little birds, which I suppose to belong to the genera *Thinocorus* and *Attagis* ; but of this I am not certain. At Sandy Point a Snipe was rather plentiful in the open ground ; and two or three species of Sandpiper occurred. A large Ibis, which I presume to be the *Theristicus melanops*, was seen not unfrequently on open ground in various localities during the earlier months of our stay in the Straits—December, January, and February. It was very shy and wary ; and it was long before a specimen was procured. It flies in small flocks of from four to eight, and has a singular cry, resembling the syllables “qua-qua,” “qua-qua.” We found it rather good eating. The *Rhea americana* we saw on various occasions, and once or twice came across its eggs. The berries of the *Pernettya pumila* and *Empetrum rubrum* constitute part of its food. The flesh, which we ate on several occasions, is dark-coloured but extremely good, somewhat resembling tender beef. The bird is termed “Yaxé” by the Patagonians. In speaking of the small birds, I ought not to have omitted a Thrush, which sings remarkably sweetly. Then, as to the *Palmipedes*, Cormorants, as I have already stated, are the most numerous of all the birds in the Straits ; and we observed three or four species. A species of Penguin is rather common (*Aptenodytes magellanicus*) ; and I saw a single

specimen of the King-Penguin, which had been shot at Sandy Point. We met with three species of Geese:—1st, the Upland-Goose (*Bernicla magellanica*), which occurred in immense flocks in the open country; 2ndly, a smaller chesnut-breasted Goose; and 3rdly, the Kelp-Goose (*B. antarctica*). The first and third species are abundant at the Falkland Islands; the second we only saw in the Straits. I do not know whether you remember asking me to get some information about the Steamer-Duck (*Micropterus cinereus*). You asked me to find out, if possible, whether there were two distinct species, one possessed of the power of flight, the other destitute of it*. In answer to this, I can state from personal observation that some Steamer-Ducks can fly undoubtedly, and that others evidently cannot; but I have examined specimens of both, and cannot find out any specific distinction in the plumage; the only difference that I can make out is that the body of the flightless bird is proportionally heavier than that of those which fly. I hope, however, to investigate the subject further in the ensuing season. You also mentioned that you had an idea that the Steamer-Duck might be following the fate of the Gare-fowl or Great Auk. To this I have to reply that there is no evidence of this process going on at present, as the bird is very plentiful in the eastern part of the Straits, and also occurs in abundance at the Falkland Islands, where we find them much tamer than in the Straits. It is a most amusing sight to see a flock of these birds waddle off the beach on being disturbed, and go steaming off at a great rate, leaving a wake of foam behind them. They have two peculiar and very distinct notes—one like the mew of a cat, the other a sort of low, hoarse growl. The flesh, which we ate on one or two occasions, is very dark-coloured, tough, coarse, and fearfully fishy. I never saw a bird so hard to kill; but nearly all the water-fowl of the Straits possess a most extraordinary tenacity of life. Three or four other species of *Anatidæ* also occurred to us; and several species of Gulls and Terns are common. A very minute Grebe was seen in plenty, chiefly swimming amongst the floating kelp; and, near the eastern entrance of the Straits, Petrels and Albatroses were not uncommon.

* [Cf. P. Z. S. 1861, p. 46.—ED.]

The increasing severity of the weather putting an end to surveying-operations, we left the Straits on the 12th of June for this place, where we arrived on the 1st of July. On the way up we encountered several species of Petrels and Albatroses; and I obtained specimens of the beautiful Cape Pigeon (*Daption capensis*), and of a larger Petrel, light ash-coloured above and white beneath. I carefully examined the digestive system of both species, and was interested by a striking difference of structure in the formation of the stomach. The entire length of the alimentary canal in the ash-coloured and white Petrel was 85 inches; of this the intestinal tract constituted 74·5 inches. The cæca measured ·25 in. in length, and were situated 2 inches above the anus. The stomach was distinctly divided into two portions, a cardiac and a pyloric; so distinct was the division that the bird might be said to possess two stomachs. The cardiac division, which possessed a comparatively feeble muscular coat, was very glandular, as was also the œsophagus. It was filled with a white, rather firm mass of semidigested ship-biscuit. The pyloric division was extremely muscular, and contained the two mandibles of a small cuttle-fish. In the Cape Pigeon I find the length of the alimentary canal to be 46 inches; of the intestinal tract 34·5 inches. The œsophagus enlarged much more abruptly to form the cardiac portion of the stomach than in the other Petrel, and the muscular coat of the cardiac portion was considerably thicker, so that the gastric glands were not visible through it. The pyloric division was much less developed, and its lining membrane was of a greenish-yellow colour. The diameter of the intestinal canal was considerably greater than in the former species. The stomach of one of the specimens examined contained partially digested biscuit; that of another a piece of pork-rind, so large that it must have distended the œsophagus greatly in its passage downwards. I made a careful drawing of the stomachs of both birds.

We have now been here nearly three months, and have had a great deal of enjoyment in this glorious country, but have found the warm, enervating climate very trying after the cold, bracing weather of the Straits, and are consequently very glad at the

thought of a speedy return thereto, even though it involves a separation from the civilized world for a good many months. We probably leave Rio in the course of ten days and proceed southwards, calling at Monte Video on our way. As we shall spend some days there, I hope to be able to go up the river to Buenos Ayres, to call on Prof. Burmeister, and see the Museum. I sent off nearly all my specimens by H.M.S. 'Megæra' about a month ago, and among them a case of bird-skins*. They are not so well prepared as I could have desired; but as ornithology is only one of the many branches of science that I have been occupied with, I could not bestow so much attention on the subject as I should have done had it been my sole task. Further, there are many difficulties in connexion with scientific work carried on on board ship, though I am singularly fortunate as regards the Captain of this vessel and several of my companions. One great drawback is the want of books, as, with the very small space at my disposal, I can only accommodate a very limited supply.

Believe me, &c.,

ROBERT O. CUNNINGHAM.

October 23rd, 1867.

SIR,—It is well known to ornithologists that the species of Sea-Eagle which inhabits Great Britain has a very wide geographical range, extending westward as far as Greenland, and eastward probably as far as Japan, but certainly to the adjacent coasts of Asia. I am not, however, aware that its nidification has hitherto been observed on the eastern coasts of Asia, and therefore think the following may be worth recording.

In the year 1863, the crew of a British vessel were employed to fell some timber at Hornet Bay, Noohookai Harbour, on the coast of Mantchouria, about lat. 41° N., and long. 136° E. One of the trees so felled contained an Eagle's nest, in which were two Eaglets, which were sent to England, and very kindly presented to me by the gentleman into whose hands they came.

* [These specimens have safely arrived, and we have handed them over to Messrs. Selater and Salvin, who have kindly promised to draw up a list of them for publication.—ED.]

They appeared to me to be specimens of the true *Haliaetus albicilla*, but I deferred putting the circumstance on record till the assumption of their adult plumage should put their specific identity beyond a doubt. This has now taken place, and I therefore request admission for this notice to the pages of the 'Ibis.'

J. H. GURNEY.

Etawah, 8th Nov., 1867.

SIR,—In 'The Ibis' for 1863 (pp. 303, 304) Mr. Swinhoe makes mention of the Fantail Warbler (*Cisticola schænicola*), a bird which is common in this part of India, and is always found where the grass is long and plentiful, sometimes in watery situations, and sometimes where there is no water in the immediate vicinity.

I have by me three specimens of the bird, which I, unlike Mr. Swinhoe, find to be full-sized,—the length of the wing agreeing very nearly with that given by Dr. Bree (B. Eur. ii. p. 88), exceeding the wing represented in his plate by an eighth of an inch. In colouring, the birds vary much, some being much darker than others. The plumage, I find, also fades more than that of most small birds.

I have taken the nest of this species very frequently. It was once only built in grass, which grew in water about a foot deep; and in this instance it was placed about a foot above the surface of the water. In other cases I have generally found it about the same distance from the ground. It is in the form of a purse or bag, about 4 inches deep and 1.5 inch in diameter, made of fine grass and cobwebs, with which the bird draws the grass-stems together, all round the nest, so as almost to hide it. To remove the nest, a considerable handful of grass must be cut at the roots. Inside it does not appear to have any additional lining but just the very fine grass and spiders' webs of which it is built. Its sides, in fact, are formed mainly of the grass-stems which support it. The bird draws them together as I have said, and constructs a bottom to the tube thus made. The entrance to the nest is at the top, and rather on one side.

The eggs are five, and sometimes six in number, rather glossy, and invariably white, more or less finely marked and spotted

with dark reddish-brown, more thickly towards the larger end, and sometimes in the form of a zone. In all the specimens I have, the reddish markings are sparingly intermixed with others of a light purplish-grey. The egg of the English Chiffchaff (*Phyllopneuste rufa*), though larger, will give a very good notion of the colouring of that of the Fantail.

I am at a loss to understand how Mr. Swinhoe got his idea of the egg being "of a clear greenish-blue," or what eggs have been figured in Dr. Bree's work for those of the Fantail. I am afraid this is not the only mistake as to the colour of birds' eggs, as so many collectors are quite ready to take on trust any specimens brought by peasants or natives.

The Fantail breeds during the rainy season, as soon as the grass has nearly grown to its full height. The first nest I took about the 12th of August, and the last late in October.

I am, &c.,

W. E. BROOKS.

*** We believe that the eggs of few birds vary so much as do those of this species, and we do not doubt that both Mr. Swinhoe and Mr. Brooks are each right in their descriptions of the specimens which have come to their knowledge, as well as Dr. Bree in those he figures. M. Lunel, in the 'Bulletin de la Société Ornithologique Suisse' (i. pp. 9-30), to which we before referred (*Ibis*, 1865, p. 531), gives a good monograph of this species, in the course of which he especially mentions the variation in the colour of its eggs, of which he figures four specimens, each very unlike the other.—ED.

SIR,—I am desirous of making a few remarks on Capt. Beavan's paper on "The Avifauna of the Andaman Islands" (*Ibis*, 1867, pp. 314-334).

1. *Hematornis cheela*. The live birds sent to the Zoological Gardens by Mr. Grote belong not to this species, as stated, but to the next, *H. elgini*, which Mr. Gurney considers to be identical with *H. bacha* of the Malay countries, described by me, from Ceylon, as *H. spilogaster* (*Cf. Ibis*, 1866, pp. 242, 243).

15. *Collocalia affinis* is apparently the same as *C. linchi*, which is common in the Nicobars.

26. *Palæornis erythrogeus*. This name *erythrogeus* has been applied to three species of the genus, but in two of them is reduced to the rank of a synonym. I do not, therefore, perceive why *nicobaricus* should be substituted for it in the present instance.

27. *Palæornis affinis*. I have no hesitation in considering this to be a young female of the preceding species, just as *P. nigrirostris*, Hodgs., is of *P. javanicus*, or *P. melanorhynchus*, Sykes, of *P. columboides*; and of the only two specimens hitherto obtained (so far as I know) of *P. schisticeps*, one has the upper mandible coral-red, and the other black, as may be seen in Mr. Gould's plate (B. As. pt. x.).

31. *Picus andamanensis* I have seen in a collection made in Sumatra.

38. *Tephrodornis grisola* should probably stand as *Hyloterpe philomela* (Cf. P. Z. S. 1863, p. 217, and Ibis, 1866, p. 368).

45. *Myiagra tytleri* is very doubtfully distinct from the widely diffused *M. azurea*. My impression is that I only saw a female specimen from the Andamans.

48. *Turdus rufulus*. I have seen many examples of this species in Malacca collections. It is a very different bird from *T. javanicus*.

49. *Oreocincla inframarginata* is possibly the female of a species in which the male is differently coloured, as in *Turdulus wardi* and its allies (Cf. Ibis, 1866, p. 375).

52. *Oriolus andamanensis*. I do not now believe this to be *O. horsfieldi*, as I formerly suspected. It is most nearly akin to *O. macrurus* of the Nicobars, but is rather smaller.

59. *Budytes citreola* should stand as *B. aureocapilla* (Vieill.), being very distinct from the true *B. citreola* of Northern Asia (Cf. Ibis, 1865, pp. 48-50, and 1867, pp. 29, 30).

62. *Corvus andamanensis* may be quite distinct from *C. culminatus*: but I have only received the latter from the Andamans; and as it is certainly common on both sides of the Bay of Bengal, extending southwards as far as Malacca (where it co-exists with *C. enca*), it is a species most likely to have found its way to the Andamans.

67. *Temenuchus andamanensis*. I am far from being as yet

convinced of the propriety of regarding this as distinct from *T. erythropygus* of the Nicobars.

75. *Carpophaga sylvatica*. In this instance there is a strongly marked difference between the Nicobar race which I have named *C. insularis* and that occurring in the Andamans, which is undistinguishable from the ordinary "Imperial Pigeon" of India and Burma.

77. *Chalcophaps indicus*. Here the same fact occurs. I could perceive no difference between Andaman specimens and those from India and Burma, whereas the Nicobar race accords with the description of *C. augusta*, Bp. (Comptes Rendus, 1855).

80. *Ægialitis pyrrhothorax* should doubtless stand as *Æ. mongolicus* (Cf. Ibis, 1867, p. 164).

86. *Herodias andamanensis* is decidedly identical with *H. concolor*, of which I never saw a white example. It also inhabits the Nicobars and Arakan.

I am, &c.,

E. BLYTH.

SIR,—I can hardly allow my friend Mr. Swinhoe's new Avocet (Ibis, 1867, p. 401) to pass without question. One of my specimens, shot in winter, before attaining the breeding-plumage, has the lower neck and tail grey instead of white. The upward curve of the bill varies very much in four specimens in my possession. I am reluctant to believe that his *Recurvirostra sinensis* is anything more than the common species, *R. avocetta*, before assuming the breeding-plumage.

Yours, &c.,

H. B. TRISTRAM.

The fact that the rose-coloured patches on some of the wing-feathers of at least one species of Touracoo could be removed by the application of water has long been known, if we are not mistaken, to ornithologists; but we are not aware that the nature of the colouring-matter had ever been determined. At a Meeting of the Chemical Society of London, on the 5th December 1867, Prof. Church brought forward the results of his investigations respecting this peculiarity in *Turacus alborittatus*. He

stated that he had found the colouring-matter to be very slightly soluble in pure water,—but that if a trace of alkali was present, it freely dissolved, forming a beautiful crimson solution. The colouring-matter was then precipitated by the action of acids, and proved to contain *copper*, of which substance the feathers not rose-coloured gave no trace.

We have to lament the loss of a young and promising ornithologist, a member of the B. O. U., and already a contributor to our pages. Mr. CHAMBERS-HODGETTS, whose “Month in Tripoli” appeared in this Journal just a year ago (*Ibis*, 1867, pp. 97–104), died on the 13th of December last, at the early age, we believe, of *twenty-two* years. Enthusiastically devoted to ornithological pursuits, and fond of oriental travel, we had hoped he would become one of our most valued correspondents.

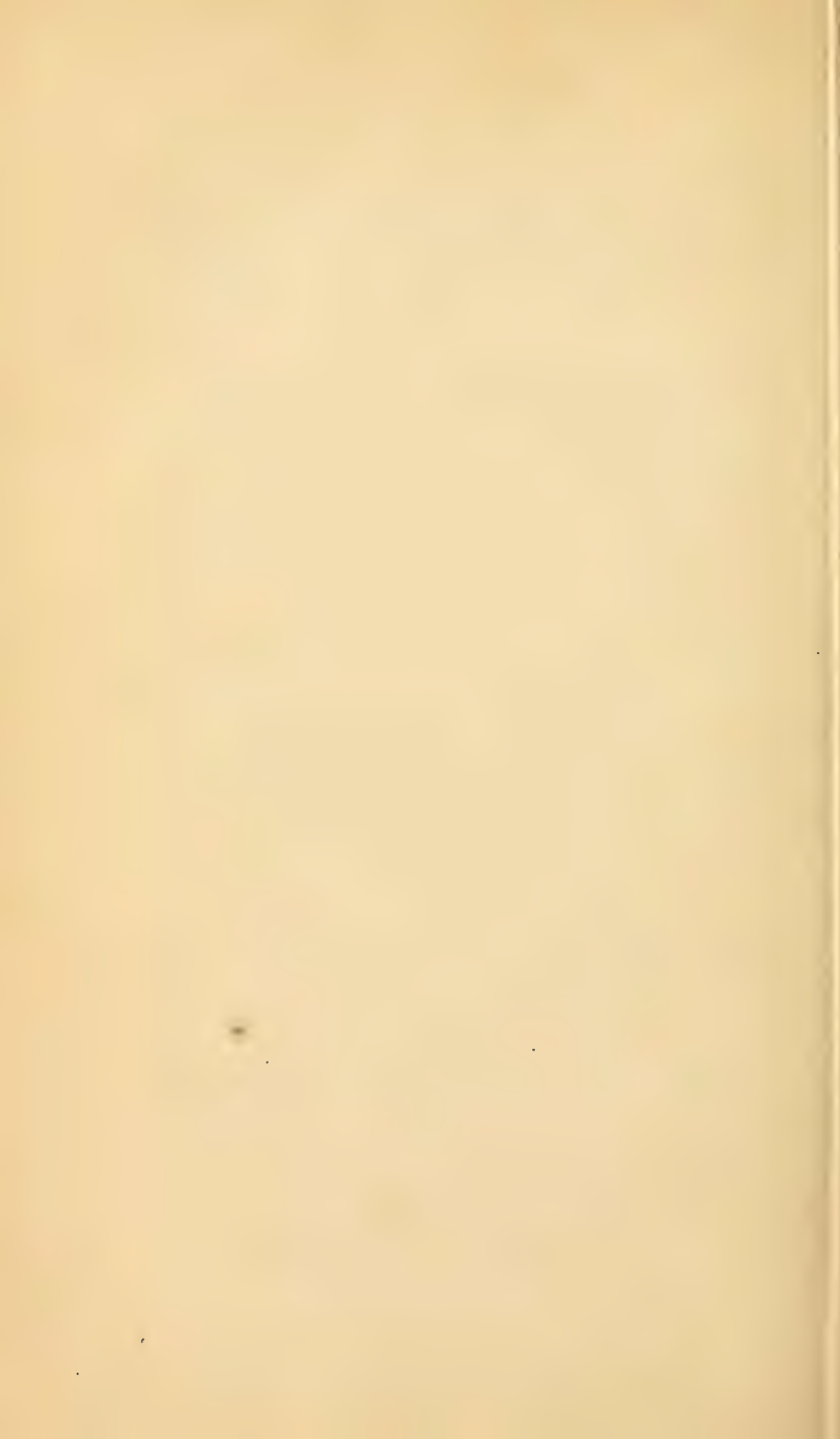
The death also of Dr. DAVID SCOTT, an occasional contributor, has also been reported to us. Though not a professed naturalist, he always took a great interest in the study of nature, and for some years past was a diligent observer of birds in the neighbourhood of Umballa, where, in the discharge of his duties, he resided. Most of his manuscript notes are in the possession of a gentleman now in this country; and it is probable that we shall be able to lay some of them before our readers.

Her Majesty's Government, on the representation of the Council of the Zoological Society, having consented to allow a zoologist to accompany the expedition to Abyssinia, our contributor Captain Beavan was nominated to the post; but he being unfortunately incapacitated through illness from taking up the appointment, it has since been conferred on Mr. William Jesse, who is accordingly proceeding with all speed to join the expeditionary force.

ERRATUM IN ‘THE IBIS’ FOR 1867.

Page 470, line 1, for “older” read “other”.





THE IBIS.

NEW SERIES.

No. XIV. APRIL 1868.

XII.—*Notes on Mr. Layard's 'Birds of South Africa.'*

By J. H. GURNEY, F.Z.S.

(Plate IV.)

MR. LAYARD, whose very interesting observations on the Birds of Ceylon* will be fresh in the recollection of many ornithological students, has again done excellent service to the cause of science by the publication of a 'Descriptive Catalogue of the Birds of South Africa,' which must prove a most useful book of reference to all who desire to investigate the ornithology of that region, whilst the very valuable, though succinct, information which it contains as to the habits of many of the species enumerated will doubtless also render it attractive to all lovers of birds and of that bird-life which is equally full of interest in every quarter of the globe.

Mr. Layard having limited his labours to those species which have been recorded as occurring south of the twenty-eighth parallel of south latitude, his Catalogue does not include many interesting birds which, though occurring in Damara Land and Great Namaqua Land, have not been observed south of those

* Published in the 'Annals and Magazine of Natural History' between 1851 and 1854, 2nd series, vols. vii., ix., xi.-xiv.

countries. It is, however, to be hoped that the ornithology of Damara Land may receive the ample illustration which it merits from the pen of Mr. C. J. Andersson, who has so thoroughly investigated it, and whose intention of publishing an important work on the avifauna of that and of the adjacent districts has already been announced*.

I doubt not that every reader of Mr. Layard's pages will join with me in the wish that so valuable a work as 'The Birds of South Africa' may speedily reach a second edition; and it will afford me much gratification should the following observations prove of any service in suggesting points for further investigation, or, in some few instances, for amplification or correction when the next edition of Mr. Layard's book is preparing for the press. I may add that I have availed myself of the present opportunity of correcting a few errors in my own lists of the birds of Natal, and that I have to thank Mr. Layard for the aid which his remarks have afforded me in so doing. The species to which my observations refer are noticed in the same order as that in which they are arranged in Mr. Layard's Catalogue; and the numbers prefixed are those which are there applied to the several species referred to.

1. *GYPÆTUS MERIDIONALIS*, Keys. & Bl. Southern Læmmergeyer.

The genus *Gypætus* appears to me to consist of but two species, *G. barbatus* and *G. meridionalis*. These, I think, are certainly distinct, as the points in which they differ, though apparently not very important, are yet very constant.

They are thus defined by Dr. Rüppell in his 'Vögel Nord-Ost-Afrikas' (p. 1):—In *Gypætus meridionalis* the tarsi, for above a quarter of their length in front and inside, and for above half of their length behind and outside, are bare of feathers and reticulated; and the region of the corner of the mouth, extending

* [It is with very deep regret that, while these pages are passing through the press, we learn that the hope above expressed—a hope which had been entertained, we are sure, by every ornithologist, can never be realized, owing to the premature death of Mr. Andersson.—ED.]

thence below the eyes as far as the region of the ear, is covered with a white woolly down without admixture of any of those black bristles which exist in that part in specimens of *G. barbatus*.

Dr. Rüppell gives Abyssinia, Nubia, Egypt, and Arabia Petraea as the habitat of *G. meridionalis*, to which must be added Southern Africa. The Læmmergeyer of the Atlas range is *G. barbatus* (cf. Cat. Rapt. B. Norw. Mus. p. 82).

2. NEOPHRON PERCNOPTERUS (Linn.), Egyptian Vulture.

Mr. Blyth has recently pointed out (Ibis, 1866, p. 233) that *N. ginginianus* (Lath.) should be withdrawn from the synonyms of *N. percnopterus* (amongst which Mr. Layard, following the example of previous authors, has included it), and restricted to the nearly allied but distinct white Vulture of India.

3. NEOPHRON PILEATUS (Burch.). Pileated Vulture.

It is worthy of remark that South-African examples of this species are somewhat larger than those obtained north of the Equator.

The late Dr. Vierthaler found this Vulture breeding in Senaar during the months of December, January, and February. He states (Naumannia, 1852, pt. i. pp. 46, 47) that the nest was always built on a high *Mimosa*, and contained a single egg, of a yellowish- or greyish-white, with rufous or yellowish spots or patches. On the Gambia this Vulture has been observed to nest on the silk-cotton tree (Cat. Rapt. B. Norw. Mus. p. 55).

In referring to the above remarks of Vierthaler, I may add that many interesting notes of his ornithological researches in North-eastern Africa were published in the 'Naumannia'*, and those of his companion, Dr. Alfred Edmund Brehm, in the 'Journal für Ornithologie'†, and that I have availed myself of both these sources of information in many of the following observations.

* 1852, (pt. i.) pp. 28-58, (pt. ii.) pp. 56-63; 1853, pp. 18-22; 1855, pp. 371-380, 469-479; 1856, pp. 68-76, and 1867, pp. 105-113.

† 1853, pp. 74-78, 451-457; 1854, pp. 73-85; 1855, pp. 362-384, 481-496; 1856, pp. 328-335, 395-413, 464-497; 1857, pp. 76-93, 214-222, 377-384; 1858, pp. 325-330, 400-410, 467-476.

With reference to the species now under consideration, Dr. Brehm remarks that two of these Vultures, which he shot in the act of incubation, proved to be male birds, and also (J. f. O. 1858, p. 403) that on pulling down another nest containing an egg, on which the old Vulture had been sitting when he approached the tree, he captured amongst the twigs which formed the foundation of the nest a species of Dormouse (supposed to be *Myoxus cauvei*) which had formed its own retreat in this singular situation.

7. GYPS RUEPPELLI, Bonap. Rüppell's Vulture.

Mr. Layard cites somewhat dubiously the occurrence of this Vulture in Natal; but the specimens sent thence by Mr. Ayres, and mentioned in the 'Ibis' for 1860 (p. 206), are undoubted examples of this species.

Both Vierthaler and Dr. A. E. Brehm describe this bird as being remarkably pugnacious when wounded—much more so (according to their observations) than any other African Vulture.

Mr. G. R. Gray, to whose kind assistance I have been much indebted in compiling these notes, as on many previous occasions, agrees with me in considering that this Vulture should bear the specific name of *rueppelli*; the synonyms *G. vulgaris* and *G. kolbii* being primarily referable to *G. fulvus*.

12. AQUILA FASCIATA, Vieill. Bonelli's Eagle.

Mr. Layard refers to an Eagle shot at Wynberg, and identified by me as belonging to this species.

I have no distinct recollection of this specimen; but subsequently to my examination of it I became better acquainted than I then was with a closely allied species—*Spizaetus spilogaster*, Bp. (R. Z. 1850, p. 487), which greatly resembles Bonelli's Eagle in the character both of its adult and of its immature plumage, and the female bird of which nearly equals in size the male of *A. fasciata*. Under these circumstances I think it is not impossible that the bird which I believed to be a South-African example of Bonelli's Eagle may prove, on closer examination, to be a female specimen of *S. spilogaster*, and I wish to draw attention to the subject as one in respect of which further investigation is desirable.

14. *SPIZAETUS CORONATUS* (Linn.). Crowned Hawk-Eagle.

As Mr. Layard says, with regard to this species, that he knows "nothing of its habits or range," I may remark that in Western Africa it extends as far north as Senegal; but in Eastern Africa I am not aware that it has been observed further north than Natal, where Mr. Ayres has known it to attack various kinds of prey—in one instance a large monkey, in a second a Cochin fowl and a small pig, and in a third a hen Turkey (Cf. Ibis, 1861, p. 129, and 1863, p. 331).

18. *CIRCAETUS PECTORALIS*, A. Smith. Black-breasted Harrier-Eagle.

Sir A. Smith's name has priority of publication over Cuvier's *Falco thoracicus*, under which specific Mr. Layard includes it. He mentions this species as being "destructive to young lambs;" but, from the circumstance of Mr. Ayres only finding snakes and lizards in the stomachs of those which he examined (Ibis, 1859, p. 238, and 1860, p. 203) I suspect that, like its northern congener, *C. gallicus*, it is usually reptilivorous. I have little doubt that the monkey- and cat-eating Eagle mentioned by Mr. Layard as "probably of this species" was in fact an example of *Spizaetus bellicosus* (No. 15) in the adult plumage, figured by Sir A. Smith (Ill. Zool. S. Afr., *Aves*, pl. 42).

CIRCAETUS FASCIOLATUS, Gray. Banded Harrier-Eagle.

This species, though omitted from Mr. Layard's Catalogue, is undoubtedly distinct, and is easily recognizable, being the smallest species of the genus *Circaetus* in its restricted form—that is, excluding the genus *Spilornis*, which Mr. Layard (unadvisedly, as I venture to think) combines with it in treating of *Spilornis bacha*.

Circaetus fasciolatus appears to be very rare; and I have only seen three examples of it, which were all obtained in the Colony of Natal. One of these had been feeding on *Termites* (Ibis, 1861, p. 130). This specimen is figured in 'The Ibis' for 1862 (pl. iii.), and is preserved in the Norwich Museum, which also possesses a second example. The type-specimen is in the British Museum.

19. *SPILORNIS BACHA* (Daud.). Malay Harrier-Eagle.

Mr. Cassin, in the "Proceedings of the Academy of Natural Sciences of Philadelphia" for 1865, states (p. 2) that there is in the Museum of the Academy a specimen which formed part of a collection made by M. du Chaillu in the countries adjoining the rivers Camma and Ogobai, in West Africa, and that this specimen, in Mr. Cassin's opinion, belongs to the species described by Le Vaillant under the name of "*Le Bacha*," and usually considered to be identical with the *Falco bido* of Horsfield. Mr. Cassin regards this specimen as proving conclusively that a species at least nearly allied to *Spilornis cheela* and *S. bido* inhabits Africa.

In calling attention to Mr. Cassin's remarks, I may add that, so far as I know, the specimen to which he refers must be unique, and it is much to be desired that an accurate figure of it should be published for the guidance of those interested in African ornithology.

23. *HELOTARSUS ECAUDATUS* (Shaw). Bateleur-Eagle.

This Eagle is found in Natal and also in the Transvaal; and Mr. Ayres has given (*Ibis*, 1859, p. 238, and 1862, p. 35) some accounts of its habits as observed by him in Natal.

I recently saw two young birds of this species, which were brought alive to London by Mr. Thompson, an American collector, who informed me that he obtained them, with the assistance of a Caffre, from a nest situated in a lofty and rocky precipice by the side of a river a few miles above the town of D'Urban, and that, as it was not convenient to him to remove them immediately, he fastened them down to the ground at the foot of the precipice, where the old birds fed them for several days, until it suited him to take them away. The pale-backed variety of the Bateleur, to which Prince Paul of Würtemberg assigned the name of *H. leuconotus*, sometimes occurs in Southern as well as in intertropical Africa*.

Whether these pale-backed birds are specifically distinct from those of the ordinary colour is at present doubtful; but the

* [Respecting *H. leuconotus* see Dr. von Heuglin's recent remarks (*J. f. O.* 1867, pp. 291, 292).—ED.]

difference in coloration between the two is certainly very marked, as may be seen by those who have the opportunity of examining the fine adult specimens of each that are now living in the Gardens of the Zoological Society of London.

This question is discussed by Dr. Hartlaub, who cites various authorities with reference to it (Orn. Westafr. p. 7); but further observations (especially on the birds in their wild state) appear to be requisite for its satisfactory solution.

24. *FALCO PEREGRINUS*, Gmel. Peregrine Falcon.

Mr. Layard has included under the synonyms of this species *F. barbarus*, Linn.; but the latter is, without doubt, specifically distinct, as was clearly pointed out by Mr. Salvin (*Ibis*, 1859, p. 184, pl. vi.).

The Norwich Museum, in addition to the specimen of *F. peregrinus* from Natal to which Mr. Layard refers, also possesses an example from the Cape of Good Hope. Both these birds are adult females.

28. *CHICQUERA RUFICOLLIS* (Swains.). African Red-necked Falcon.

Vierthaler, who met with this species somewhat plentifully in Sennaar, states (Naumannia, 1852, pt. ii. pp. 48, 49) that it usually perches, and always breeds, on the Dhelleb, Dolléb, or Debbel Palm (*Borassus aethiopicus*); and Dr. von Heuglin, who also observed this Falcon on the upper part of the Blue Nile, refers to its preference for this tree (*Ibis*, 1860, p. 409). Both Vierthaler (*loc. cit.*) and his companion, Dr. A. E. Brehm (*J. f. O.* 1858, p. 408), remark that *Columba guinea* also selects the same species of palm for its nest, and that a pair of these Falcons and a pair of Guinea Pigeons frequently have their nests on the same tree, and live as neighbours in apparent amity; both species were found thus in Sennaar in the month of January 1851.

According to the account given by Sir Andrew Smith in the '*South African Quarterly Journal*' (vol. i. No. 3, April-June 1830, pp. 233-235), both the manner and the season of breeding adopted by this Falcon in South Africa somewhat differ from its habits in these respects as observed in Sennaar.

His account of its nidification in South Africa is as follows : —“ Specimens of this hawk are not unfrequently found along the western coast, and I have also met with some about the Langekloof, at least three hundred miles to the eastward of Cape Town. In these situations it is often seen resorting, in the evenings, to the poplar and other trees in the vicinity of farm-houses, and upon such also it often builds its nest. The latter is constructed externally of dry twigs, and within of hair and feathers, and in it are deposited from three to four eggs, during the months of August and September.”

I think that Bonaparte was fully justified in assigning this species and its Indian congener *Falco chicquera*, Daud., to the separate genus which he instituted (Rev. Zool. 1854, p. 535) under the title of *Chicquera*; as they appear to me to form a group generically distinct both from the typical Falcons and also from the various genera most nearly allied to the genus *Falco*.

29. HYPOTRIORCHIS SUBBUTEO (Linn.) Hobby.

HYPOTRIORCHIS CUVIERI (A. Smith). Cuvier's Hobby.

These two Hobbies, though treated by Mr. Layard as belonging to the same species, are unquestionably distinct.

They both occur in South Africa, but both appear to be rare in that region.

H. cuvieri, described by Sir A. Smith in 1830 (S. Afr. Quart. Journ. i. p. 392) is nearly allied to the peculiar Hobby of South-eastern Asia, *H. severus* (Horsf.), and has been figured by Professor Schlegel (Nederl. Tijdschr. Dierk. i. p. 123, pl. 5) under the name of *Falco boschii* (Cf. Ibis, 1864, p. 398).

ERYTHROPUS AMURENSIS (Radde). Eastern Redfooted Hobby.

The occurrence of this species in South-eastern Africa is recorded in my last paper on the birds of Natal (*suprà*, p. 41). Its congener, *E. vespertinus*, I have not seen from any locality south of Damara Land.

33. TINNUNCULUS RUPICOLOIDES (A. Smith). Greater South-African Kestrel.

Mr. Ayres states that this is one of the commonest Falcons in the Transvaal. He thinks that it is sometimes deprived of its nest by *Corvus capensis*, Licht. (*C. segetum*, Temm.), as on one occa-

sion he saw a pair of these Kestrels ineffectually endeavouring to drive away two Crows of this species from a nest in a willow-tree, which Mr. Ayres believes that the Kestrels had built. Whichever of the rival claimants were the builders of the nest, the Crows were its ultimate occupants, three young Crows having been taken out of it about a month after the contest above related.

34. *AVICIDA VERREAUXI*, Lafr. South-African Pern.

AVICIDA MADAGASCARIENSIS (A. Smith). Madagascar Pern.

35. *PERNIS APIVORUS* (Linn.). European Pern.

Mr. Layard includes *Buteo madagascariensis*, A. Smith, amongst the synonyms of *Pernis apivorus*; but it is a very distinct bird, nearly allied to, though not identified with, *Avicida verreauxi* (Cf. Ibis, 1864, p. 357). Whether this last-named species is identical with *A. cuculoides* of West Africa, is a point upon which I am unable to offer an opinion, not having seen the West-African bird, but I think it quite possible that Mr. Layard may be right in uniting them; for, although Dr. Hartlaub treats them as distinct (Orn. Westafr. p. 10), he does not appear to speak very positively on the point.

36. *MILVUS MIGRANS* (Bodd.). Black Kite.

Under the name of *M. ater* (Gmel.), which yields in priority to that above given, Mr. Layard treats this Kite as identical with *M. govinda* and *M. affinis*; but they form three distinct species, of which the first only occurs in Africa. The specimen of *M. migrans* killed at Colesberg was shown to me by Dr. Selater, and is the most southern example of that Kite which I have seen. It has however occurred in Madagascar (Ibis, 1863, p. 337).

39. *ASTUR MELANOLEUCUS*, A. Smith. Black-and-white South-African Gos-Hawk.

Both sexes of this species seem, when adult, to be liable to a melanism, which is figured by Sir A. Smith (Ill. Zool. S. Afr., *Aves*, pl. 18, fig. A). I have already made some remarks on this subject (Ibis, 1864, p. 357); but it is one in respect of which further observation and investigation are much to be desired.

40. ACCIPITER TACHIRO (Daud.) Tachiro Sparrow-Hawk.

I have received numerous specimens of this Hawk from Natal, in all stages of plumage, and have also seen it from the Zambesi. Mr. Ayres states that it attacks small birds; but he took the remains of a frog from the stomach of one specimen (Ibis, 1859, p. 241), and some crickets from that of another (Ibis, 1860, p. 204). A third specimen was shot by him whilst pursuing on foot, amongst some rough grass, some chickens which had taken refuge in that cover (Ibis, 1862, p. 155). An adult female in the Norwich Museum from the Zambesi is much paler in the coloration both of its upper and under parts than is the case with the adult females I have received from Natal. These it also slightly exceeds in the length of the tail, tarsus, and wing from the carpal joint to the end of the primaries.

41. ACCIPITER POLYZONOIDES (A. Smith). Many-banded Sparrow-Hawk.

This species is frequent in collections from Damara Land; and I have also seen it from the Zambesi, but not from Natal. It is apparently the southern representative of *A. brachydactylus* (Swains.), which latter is probably identical with *A. sphenurus* (Rüpp.).

42. ACCIPITER MINULLUS (Daud.). Least African Sparrow-Hawk.

Mr. Layard's description of this species has been taken from an immature specimen, the plumage of the adults of both sexes being almost exactly the same as that of the adults of *A. tachiro*, with the addition of conspicuous white spots on the inner webs of the rectrices. The Norwich Museum contains specimens from Natal both in immature and adult plumage, and also an adult female from the Zambesi. In coloration this last differs from Natal examples of the same age and sex in the same manner as does the Zambesian specimen of *A. tachiro* which I have above mentioned. This variation of colour is perhaps that referred to by Dr. von Heuglin in his remarks on *A. minullus* (Ibis, 1861, p. 75). In the case of this species, however, there is no corresponding difference of dimensions.

44. MELIERAX GABAR (Daud.). Gabar Hawk.

Dr. von Heuglin (Ibis, 1861, p. 74) mentions a remarkable difference in size observed in this species between specimens obtained in Eastern and in Western Africa; and it would be interesting to ascertain with which of these two forms examples obtained in Southern Africa most nearly agree. Mr. Layard gives the measurement of a South-African specimen, but does not mention the sex, which, for the purpose of such a comparison as that above suggested, would, of course, be an essential consideration.

The habits of this Hawk, as observed in Sennaar, are thus described by Dr. A. E. Brehm (J. f. O. 1857, p. 84):—"It lives just like our Sparrow-Hawk; but it is not so active, and resembles its congener the sluggish *Melierax polyzonus*;" and again (J. f. O. 1858, p. 404), "its whistle is clear and penetrating, resembling very much that of *Elanus melanopterus* . . . it pursues insects more than birds." I have not seen this species from Natal.

46. MELIERAX MUSICUS (Daud.). Chanting Hawk.

The geographical range of this strictly southern bird is singularly limited in comparison with that of the nearly allied intertropical species *M. polyzonus*, Rüpp. I have never seen *M. musicus* from any locality north of the tropic of Capricorn; and Mr. G. R. Gray informs me that the Hawk from the Gambia, in the British Museum, which Dr. Hartlaub, in his 'Ornithologie Westafrika's,' mentions (pp. 12, 13) as an example of *M. musicus* is in fact a specimen of *M. polyzonus*, and now stands as such in the Museum series of Raptorial birds.

Mr. Ayres has not met with this species hitherto either in Natal or in the Transvaal, but has transmitted to me the following notice of its habits by Mr. Phillips, who observed it in about lat. 25° S. and long. 25° W.:—"It frequents bushy country and lives principally on the ground, but is very shy, and, when disturbed, settles on trees. It runs with exceeding swiftness, and in habits much resembles the Secretary-bird; its food consists of grasshoppers and other insects." Mr. Phillips's note was accompanied by a specimen of the bird, which was sent to me for identification.

47. *POLYBOROIDES TYPICUS*, A. Smith. African *Gymnogene*.

Mr. Layard, in common with some other authors, treats the Madagascar race, *P. radiatus* (Scop.), as identical with the African; but it seems to me to be, without doubt, specifically distinct, having always, in its adult state, the transverse white bars on the abdomen and adjacent parts conspicuously broader than is the case in the African species, from which it also differs in the paler grey of the upper surface, and especially of the head and neck. This distinction is pointed out by Dr. Hartlaub (Orn. Westafr. p. 3); and he adds the following remarks with reference to this species, to which I am desirous of calling attention:—

“In *P. typicus* there exists, according to a communication from that expert and credible observer, Jules Verreaux, a very remarkable peculiarity, namely that the tarsus at the knee-joint is moveable towards the front as well as behind, a provision which renders no little assistance to the bird in drawing out frogs in its talons from the marsh-holes. . . . Verreaux saw it in such places twist and turn its legs in all directions, and in the most surprising manner, in order to capture its prey.”

This singular property has been also observed by Mr. Ayres in Natal (*Ibis*, 1859, p. 237); and a similar observation as to the reversibility of the upper metatarsal joint in the Madagascar species has also been made by Mr. Edward Newton (*Ibis*, 1863, p. 338).

Professor Owen, who very obligingly examined, at my request, a skeleton of *P. typicus* with reference to this peculiarity, informed me that:—

“The peculiar power of reversing the ordinary position of the metatarsus appears to depend, not on any modification appreciable in the configuration of the articular surfaces of the tibia and metatarsal bone, but on the smaller size and less cuneiform shape of the fibro-cartilage attached to the inner side of the capsule of the joint, and which is wedged in, in the Kite, Sparrow-Hawk, and, no doubt, in most other *Raptores*, between the two bones at the back of their joint. No doubt the lateral ligaments would present a correlated modification; but a dissection of the parts in the recent *Polyboroides* would be re-

quisite to ascertain the precise condition of the soft parts of the joint, with the modification of the tendons crossing it, connected with the peculiar extent of motion of the part. Certainly an inspection of the bones only would never have suggested the possession of the faculty" *.

I have mentioned somewhat at length this remarkable peculiarity of the genus, as Mr. Layard does not refer to it, and in the hope that the anatomy of recent specimens may be examined by South-African naturalists, as suggested by Professor Owen in the remarks above quoted.

The Norwich Museum possesses a nestling of *P. typicus*, obtained on the Niger by the late Dr. Baikie; but I am not aware that its mode of nidification has yet been recorded.

55. *TENIOGLAUX CAPENSIS* (A. Smith). Cape Owlet.

This little Owl must not be confounded (as in Mr. Layard's footnote, p. 38) with the next species, from which it is very distinct, having been correctly included by Dr. Kaup (Trans Zool. Soc. iv. p. 212) as the only African species of his subgenus *Tenioглаux*. It appears to be a rare species, but occurs in the vicinity of the River Zambesi as well as in the Cape Colony. I have not seen it from Natal.

56. *GLAUCIDIUM LICUA* (Licht.). Damara Owlet.

This species, of which Prof. Schlegel's *Noctua perlata capensis* (Mus. P. B., *Striges*, p. 37) is a synonym, is frequent in Damara Land; but I have not seen it from any more southern locality.

Dr. Kaup (Trans. Zool. Soc. iv. p. 205) treats it as distinct from its nearly allied but more northern congener, *G. perlatum* (Vieill.). I regret that I have not had sufficient opportunities of examining the northern race to justify me in expressing an opinion on the subject.

57. *HUHUA VERREAUXI* (Bp.). Verreaux's Owl.

This species seems to me to be most properly referable to Hodgson's genus *Huhua*, which should comprise all the large Owls allied to the genus *Bubo* but with dark-brown irides. The detailed definition of this genus is well given by Dr. Jerdon (B. Ind. i. p. 131), to which I would refer my readers.

* Cf. Cat. Rapt. B. Norw. Mus. pp. 14, 15.

With regard to the colour of the iris in the present species, which is stated by Mr. Atmore (as quoted by Mr. Layard) to be surrounded with a "narrow brick-red ring," I may mention that I have at different times seen living specimens of this Owl in the menagerie of the Zoological Society of London, in all of which the colour of the iris has been an intensely dark brown, without any surrounding red ring being visible, except so far as the somewhat conspicuous coral-pink eyelid has had that appearance.

I have hitherto considered *Huhua verreauxi* to be identical with *H. lactea* (Temm.) (*Bubo sultanus*, Lesson), and have included it under the name of *B. lacteus* in my lists of Natal birds (Ibis, 1863, p. 321, and 1868, p. 50); but on looking more closely into the subject, I believe that Mr. Layard is correct in following Bonaparte's conclusion, and in treating these two species as distinct. On comparing a specimen of *H. verreauxi* from Caffraria with an example of *H. lactea* from Bissao (both being female birds), I have found the following differences between the measurements of the two:—

	Ulna.	Carpus to tip of fourth primary.	Tarsus.	Tail.
<i>Huhua verreauxi</i> ♀ . .	8 in.	18·5 in.	3 in.	11 in.
<i>H. lactea</i> ♀	7·5	16	2·5	9·5

In these two specimens there is no appreciable difference of coloration; and the distinction between the two species appears, therefore, to rest upon size alone, as is also the case to a very great extent with the Indian and Indo-Malayan species of the genus *Huhua*.

Owing in great measure to the circumstance of but few naturalists having admitted the specific distinctness of these two birds, their respective geographical ranges have not at present been satisfactorily ascertained.

The localities given by Bonaparte (Consp. Av. i. p. 49) for *H. lactea* are Senegal and Sierra Leone; the specimen above referred to, and which belongs to the Norwich Museum, was obtained (as I have already mentioned) from the intermediate locality of Bissao.

A third African species of the genus *Huhua* is *H. cinerascens* (Guérin, Rev. Zool. 1843, p. 321).

This Owl was first discovered in Abyssinia, but was subsequently obtained on the Niger by the late Dr. Baikie; and a specimen is now living in the menagerie of the Zoological Society, which was brought from West Africa, though the exact locality whence it was procured is unknown.

This species much resembles the two preceding in its general coloration, but it wants the conspicuous black crescent which they both exhibit on the sides of the disk. In size it is much smaller than *H. lactea*, and barely equals *Bubo maculosus*.

A fourth African species of the same genus, of about the same size as *H. cinerascens*, but of a much less sombre coloration, is the West-African *H. fasciolata* (Temm.) (*Bubo poensis*, Fraser) *, a specimen of which is also living in the Zoological Gardens, and was figured in the "Proceedings" of the Society for 1863 (pl. xxxiii.); since that time, however, the yellow tints of its plumage appear to me to have assumed a richer and deeper tinge than they then possessed.

60. *EPHIALTES CAPENSIS* (A. Smith). South-African Scops-Owl.

Dr. Kaup (Trans. Zool. Soc. iv. p. 223), under the name of *Scops latipennis* (Licht.), and Dr. Hartlaub (Orn. Westafr. p. 20) treat this species as distinct from *E. senegalensis* (Swains.), with which Mr. Layard identifies it. I regret that I am unable to offer an opinion on the point, not having had an opportunity of comparing the two races.

61. *OTUS LEUCOTIS* (Temm.). African White-eared Owl.

A pair of these Owls from the Gambia lived for a short time in the menagerie of the Zoological Society of London; and I may here transcribe a note which I made after carefully ob-

* [The specific name of Mr. Fraser seems to us to possess unquestionable priority. The bird was described by him at a meeting of the Zoological Society on the 25th January, 1853, and the description was printed in the 'Annals and Magazine of Natural History' for February 1855 (p. 136). Temminck's name was not "published" (so far as we know) till Dr. Hartlaub gave utterance to it in the September "Heft" of the 'Journal für Ornithologie' for the same year (p. 354).—ED.]

serving them, both birds being at the time quite healthy and in good condition :—"The character of the plumage, the position and motion of the tufts or 'horns,' and the colour of the iris, which is rich orange, appear to show that this species is a true *Otus*. The eyes are peculiarly prominent, which is especially evident when the eyelids are closed."

Some particulars of the nidification of this species in Natal and in Damara Land will be found in 'The Ibis' for 1862 (p. 26).

BRACHYOTUS PALUSTRIS, Bp. Short-eared Owl.

The Zoological Society has lately acquired from Natal a living bird of this widely-spread species. It is a dark-coloured example, but not more so than some English specimens that have come under my notice.

65. STRIX POENSIS, Fraser. South-African Screech-Owl.

I do not feel by any means so confident as Mr. Layard is of the specific distinctness of the South-African form of *S. flammea*, not having had the opportunity of comparing a sufficient series of northern and southern birds to enable me to form a decided opinion on the subject; if, however, the southern race be really distinct, it should bear the specific name of *S. poensis*, which has priority over that of *S. affinis*, as has been pointed out by Mr. Blyth (Ibis, 1866, p. 251).

66. SCELOSTRIX CAPENSIS (Smith). South-African Grass-Owl.

Mr. Layard in his remarks on the preceding species, mentions this Owl and *Strix poensis* as being both of them as closely related to *S. flammea* "as the black Crows"; but the present species differs much from either of the others, in coloration, in configuration, and in habits, and belongs to the naturally distinct though restricted group forming the subgenus *Scelostrix* of Dr. Kaup (Trans. Zool. Soc. iv. p. 248), who treats the species as identical with the Indian *S. candida* (Tickell); but I agree with Mr. Blyth (Ibis, 1863, p. 31, note) and with Dr. Jerdon (B. Ind. i. p. 119) in believing them to be specifically distinct.

It is, I think, to be regretted that the following six distinct species of African Owls (to which I have prefixed Mr. Layard's numbers) should all have received the specific name of

"*capensis*," a circumstance not a little calculated to create confusion amongst them :—

(55.) *Noctua* [*Tanioglaux*] *capensis*, A. Smith, S. Afr. Quart. Journ. (1834) ii. p. 313; Ill. Zool. S. Afr., *Aves*, pl. 33.

(56.) *Strix* [*Glaucidium*] *licua*, Licht., Verz. Säug. u. Vög. aus dem Kaffernlande (1842), p. 12: *Noctua perlata capensis*, Schlegel, Muséum des Pays-Bas, *Striges* (1862), p. 37.

(58.) *Strix* [*Bubo*] *capensis*, Daud., Tr. Orn. ii. p. 209: *Bubo capensis*, A. Smith, S. Afr. Quart. Journ. (1834) ii. p. 317; Ill. Zool. S. Afr., *Aves*, pl. 70.

(60) *Scops* [*Ephialtes*] *capensis*, A. Smith, S. Afr. Quart. Journ. (1834) ii. p. 314; *Ephialtes latipennis*, Licht., Nomencl. Av. (1854) p. 7.

(64.) *Otus* [*Phasmoptynx*] *capensis*, A. Smith, S. Afr. Quart. Journ. (1834) ii. p. 316; Ill. Zool. S. Afr., *Aves*, pl. 67.

(66.) *Strix* [*Scelostrix*] *capensis*, A. Smith, S. Afr. Quart. Journ. (1834) p. 317; Ill. Zool. S. Afr., *Aves*, pl. 45.

67. CAPRIMULGUS NATALENSIS, A. Smith. Natal Goatsucker.

The observations of Mr. Ayres upon the habits and nidification of this Goatsucker will be found in 'The Ibis' (1859, p. 243, and 1860, p. 204); and I here refer to them, as Mr. Layard's notice of this species does not contain any information on the subject.

69. CAPRIMULGUS SMITHI, Bonap. Smith's Goatsucker.

71. CAPRIMULGUS INFUSCATUS, Rüpp. Fuscous Goatsucker.

On reexamination of the Goatsucker included in my list of the birds of Natal (Ibis, 1859, p. 242) under the name of *C. infuscatus*, I much regret to find that this identification was erroneous, the bird referred to being in reality an example of *C. smithi*. *C. infuscatus* must therefore be erased from the list of birds received by me from Natal.

I may add that the example of *C. smithi* just noticed confirms Mr. Layard's remark, that the male of this species is destitute of white markings on the tail.

74. *CYPSELUS GUTTURALIS*, Vieill., N. Dict. d'Hist. Nat. xix. p. 422; Tristram, P.Z.S. 1867, p. 887. South-African Alpine Swift.

75. *CYPSELUS BARBATUS*, Sclater, P.Z.S. 1865, p. 599. South-African Black Swift.

The Rev. H. B. Tristram, in a paper read before the Zoological Society of London, on 14th November, 1867, has shown that the two European Swifts, *C. melba* and *C. apus*, are specifically distinct from the nearly allied representative species of South Africa, which latter should respectively bear, as above, the names of *C. gutturalis*, Vieill., and *C. barbatus*, Sclater (*ex MS.* Temm.).

76. *CYPSELUS CAFFER*, Licht. White-rumped Swift.

The nidification of this Swift in South Africa, as described by Mr. Layard, and as also noticed in the Transvaal by Mr. Ayres (*Ibis*, 1868, p. 50), differs from its habits in this respect as observed in Sennaar by Dr. Vierthaler (*Naumannia*, 1852, pt. i. p. 34) and his companion, who found it breeding in holes about two feet in length and terminating in a basin. These holes were pierced in a steep river-bank; and in one of them a sitting bird of this species was captured on her nest, which contained three white eggs.

84. *HIRUNDO ATROCÆRULEA*, Sundev. Little Blue-black Swallow.

Mr. Layard inadvertently misquotes Mr. Ayres's observations (*Ibis*, 1863, p. 322) as to this species. Mr. Ayres does not say that it is the "most common," but the "most uncommon" of the Swallows of Natal.

86. *HIRUNDO ALFREDI*, Hartl. Prince Alfred's Swallow.

Mr. Tristram has recently received from Mr. Ayres a Swallow obtained in the Transvaal, which appears to be identical with that described by Mr. Layard in his 'Catalogue' under the name of *H. lunifrons*; but, though allied to that American species, this Swallow is specifically distinct from it. Dr. Hartlaub, who has examined one of the specimens sent over by Mr. Ayres, agrees with me in this opinion, and also in considering that the South-African bird belongs to an undescribed species.

The discovery of this new African Swallow being due to Mr. Layard's remarkable and acute detection of its nest in a photograph taken during the first visit of His Royal Highness the Duke of Edinburgh to the Cape, this circumstance may be commemorated, and, as it seems to me, very appropriately, by designating this species "Prince Alfred's Swallow;" and Dr. Hartlaub has acted on my suggestion to this effect in describing it under the name of *Hirundo alfredi*.

Dr. Hartlaub writes to me respecting this addition to the list of African Swallows in the following words:—

"The Swallow is very certainly new. Layard describes it under the name of *H. lunifrons*. Your specimen is a younger bird; it belongs to the American section of *H. fulva* and *H. lunifrons*."

I am further indebted to Dr. Hartlaub for the following diagnosis of *HIRUNDO ALFREDI*:—

"Supra fusco et chalybeo variegata, caudâ emarginatâ et alis fuscis; uropygio et supracaudalibus ex parte dilute ex auran-tiaco rufis; subtus albicans, pectore, hypochondriis et subalari-bus læte rufescentibus; vittâ brevi utrinque a rostro super oculus extendente rufâ; crisso et subcaudalibus ex parte intense rufis; rostro nigro. Gulâ albido et rufescente variegatâ.

"Long. circa 5", rostr. 3", al. 4" 3"; caud. 2".

"In a younger (?) specimen, there are traces of a dark pec-toral band, and the superciliary line is more like a rufous whitish loreal spot. It seems to me very possible that neither the bird described in Mr. Layard's new work, nor that submitted to my examination by Mr. J. H. Gurney is quite adult."

I cannot concur in Dr. Hartlaub's suggestion that the last-named specimen is immature; as it is the male of a pair shot from a colony at the period of incubation, and sent to Mr. Tris-tram, with some eggs taken from the adjoining nests at the same time; two of these eggs, together with the male bird here described, have been figured by Mr. Wolf in the accompanying plate (Plate IV.); the female specimen only differs from the male in having a rather slighter intermixture of steel-blue on the feathers of the gorget and less distinct pale brown margins on those of the occiput.

Mr. Ayres gives the following account of the colony of these Swallows in the Transvaal, from which the birds and eggs sent to Mr. Tristram were obtained :—" During the last Free-State war with the Basutos many farmers left their homesteads to the mercy of the Caffres ; and at one of these deserted houses I found many hundreds of these Swallows breeding in December, the walls being lined with nests, one under the other and adjoining, for three or four feet under the eaves. There were over five hundred nests on one wall in a length of forty feet. The nests are round in shape, the opening facing outwards and downwards, composed of mud, and well lined with the flowers of grass and feathers.

"The mosquitos and sandflies, elsewhere in the Free State a complete plague in the summer months, are thoroughly cleared off in the neighbourhood of these Swallows ; and whilst resting under the shade of the peach- and lemon-trees, watching the busy colony, one feels grateful to the tiny birds for the peace and quietness enjoyed through their labour.

"The whole length of this Swallow is 6 inches : iris dusky ; bill black ; tarsi and feet dusky."

109. CERYLE MAXIMA, Pallas. Great African Kingfisher.

As Mr. Layard, in his notice of this Kingfisher, mentions that "in some specimens the under parts differ in the distribution of the colours," I may refer to some details formerly given (Ibis, 1859, p. 244) of the distribution of the colouring on the under parts of each sex of this species, both in its immature and in its adult state, founded upon dissections made by Mr. Ayres of specimens obtained by him in Natal.

112. MEROPS SAVIGNII (Swains.).

113. MEROPS ÆGYPTIUS, Forsk. Egyptian Bee-eater.

I may here insert the following remarks, contained in a communication with which I have been favoured by Mr. G. R. Gray, whose assistance I sought with reference to the synonymy of these Bee-eaters :—

"*Merops ægyptius*, Forsk., is much the oldest name, being published in 1775, while Cuvier's *M. savignyi* dates only from

1817. These two names are coequal; Swainson, however, has applied the name of *savignyi* to two different species, viz.:—

M. savignyi, Swains. Zool. Ill. pl. 76 = *M. albicollis*, Vieill. N. Diet. d'Hist. Nat. xiv. p. 15.

M. savignyi, Swains. B. W. Afr. ii. p. 77, pl. vii. = *M. chrysocercus*, Cab. & Heine, Mus. Hein. ii. p. 139.

"This latter is closely allied to *M. ægyptius*"*.

HEMIPTERYX IMMACULATA, Hartl. Plain-breasted Pincpine.

Mr. Layard's 'Catalogue' does not include this new species discovered at Windvogelberg by Capt. Bulger, and described by Dr. Hartlaub in the 'Proceedings' of the Zoological Society of London for 1866 (p. 22).

147. DRYMÆCA PALLIDA, A. Smith. See below, under no. 162.

149. DRYMÆCA NATALENSIS, A. Smith. Natal Drymœca.

In both this species and the nearly allied *D. curvirostris* the male is considerably larger than the female, a fact which has been already noticed (*Ibis*, 1865, p. 274); but as it seems to me an interesting peculiarity, I am desirous of again drawing attention to it, as a point not to be lost sight of in the study of this genus.

153. DRYMÆCA ABERRANS, A. Smith. Aberrant Drymœca.

I regret to find that I have fallen into an error with reference to a specimen which was sent to me from Natal, and mentioned by me in 'The Ibis' (1863, p. 324) as belonging to this species. It proves, on closer examination, to be an example of *D. affinis*, Mr. Layard's no. 154. The only specimen I have seen of the true *D. aberrans* is Sir A. Smith's original type, which is preserved in the British Museum.

162. DRYMÆCA MELANORHYNCHA, Jardine and Fraser.

Mr. G. R. Gray informs me that, from a recent examination of specimens, he has arrived at the conclusion that *D. melanorhyncha* (Contr. Orn. 1852, p. 60) must be considered merely a synonym of *D. pallida*, no. 147 of Mr. Layard's 'Catalogue.'

* [It would therefore appear that Mr. Layard's No. 112 should stand as *M. chrysocercus*; but see Herr O. Finsch's remarks (J. f. O. 1867, pp. 239-245).—ED.]

and that it is not, as had been previously supposed, a distinct species.

164. *DRYMÆCA CURVIROSTRIS*, Sundev. Curve-billed Drymœca. See note under no. 149.

171. *EREMOMELA BRACHYURA* (Vieill.). Short-tailed Eremomela.

I think Mr. Layard is in error in stating that this species has been obtained by Mr. Ayres in Natal. I have not seen it from that colony.

SYLVIETTA MICRURA (Rüpp.). Short-tailed Sylvietta.

Mr. Layard does not include this species in his 'Catalogue;' but a single example has been sent to me from Natal (Ibis, 1865, p. 265). It is a common bird in collections from Damara Land; and Dr. von Heuglin, who met with it as far north as Nubia, states (Sitzungsb. Akad. Wissensch. Wien, 1856, p. 21) that "in its habits and call it bears a great resemblance to *Sitta europæa*."

177. *CALAMOHERPE GRACILIROSTRIS*, Hartl. Slender-billed Reed-Warbler.

Mr. Layard has omitted to record that the type-specimen of this species and also those of *Camaroptera natalensis*, *Turdus gurneyi*, *Butalis cærulescens*, *Estrela nitidula*, and *Megalophonus rostratus*, were procured by Mr. Ayres in addition to *Cisticola ayresi*, the discovery of which by that naturalist is mentioned by Mr. Layard (p. 94). I trust I may here be allowed to supply this accidental omission, in justice to my valued correspondent, who has also subsequently added an eighth new species to the South-African avifauna by the discovery of another undescribed Finch, *Estrela carmelita*, to which I shall more particularly refer in its proper order.

I may add that four of the above-mentioned species appear to be of considerable rarity, as of *Turdus gurneyi*, *Estrela nitidula*, and *Estrela carmelita* I have only seen the single type-specimens, and of *Butalis cærulescens* only the type-pair, one of which (as the sexes agree in plumage) I have placed in the British Museum.

CALAMOHERPE STREPERA (Vieill.). Lesser Reed-Warbler.

The only South-African specimen of the Lesser Reed-Warbler which has come under my notice was sent from Natal, and differs from English examples in its shorter primaries and somewhat more rounded tail, as noted in '*The Ibis*' (1865, p. 266), where I have mentioned this specimen under the name of *C. arundinacea*, which, however, is properly applicable to the Greater Reed-Warbler (*Sylvia turdoides*, Meyer).

It would be interesting to ascertain whether other South African examples of this Warbler present a similar deviation from the European type.

179. CAMAROPTERA NATALENSIS, Hartl. Natal Camaroptera.

The British Museum possesses an example of this bird, obtained in Natal, which differs singularly from the usual coloration of the species, its plumage being of a uniform but very pale fawn-colour, except on the upper part of the head, where it is of a somewhat darker fawn than elsewhere.

196. THAMNOLÆA ALBISCAPULATA (Rüpp.). White-shouldered Chat. See below, under no. 208.

207. PRATINCOLA PASTOR, Strickl. South-African Stonechat.

I have much doubt as to whether this Stonechat is specifically distinct from the European race, from which it appears to me to differ only in the purer black of the head, neck, and back of the male, caused by the absence of the minute brown tips and margins which occur on the feathers of those parts in European specimens. I have treated the two races as identical in my list of Natal birds (*Ibis*, 1860, p. 208).

208. THAMNOBIA PTYMATURA (Vieill.).

I have to thank Mr. Layard for pointing out a mistake which I made (*Ibis*, 1863, p. 328) in admitting the name of this species into my list of Natal birds. The specimen which I had before me at the time appeared to agree with the first figure of Le Vaillant's plate (no. 188); but by an unfortunate error I appended to it the name of the species represented in the second figure of the same plate, and thus included it in my list under the name of *Thamnobia ptymatura* instead of under that of *Tham-*

nolæa albicapulata (no. 196 of Mr. Layard's 'Catalogue'), the species represented in Le Vaillant's first figure, and to which the specimen in question belonged. This specimen was ascertained by Mr. Ayres to be a female; but it does not differ from the ordinary plumage of the male bird, except by the presence of two small black spots adjacent to each other, and situated a little in front of the middle of the white shoulder-patch, very much as they are represented in Le Vaillant's figure.

The presence of the white shoulder-patch in the female bird was relied on by Bonaparte in his 'Conspectus' (i. p. 302) as the ground for separating this species from *T. cinnamomeiventris* (Lafr.); but after comparing the specimens sent to me from Natal with those which are preserved in the British Museum, it is my impression that neither the presence nor the absence of the white shoulder-patch in the female is a constant specific character, and that it more probably depends upon the age of the specimen. I therefore think that Mr. Layard is right in treating *T. cinnamomeiventris* (under which name I have included the species in my Natal list, Ibis, 1864, p. 349) as merely a synonym of *T. albicapulata*.

The passage in 'The Ibis' above mentioned contains a curious account, supplied by Mr. Ayres, of a semidomesticated individual of this species, an adult male bird, which was styled a "mock-bird" by its owner, from which I infer that it possessed imitative powers, probably similar to those of *Saxicola pileata* and *S. bifasciata*.

247. BESSORNIS NATALENSIS (A. Smith).

I retain the opinion which I formerly expressed (Ibis, 1862, p. 152) that Sir Andrew Smith's *Cossypha natalensis* (Ill. Zool. S. Afr., *Aves*, pl. 60) is merely the immature plumage of *B. vociferans* (no. 245 of Mr. Layard's 'Catalogue').

CRATEROPUS SWAINSONI, A. Smith. Swainson's Crateropus.

This species is not included by Mr. Layard; but Dr. Hartlaub (P. Z. S. 1866, p. 436) mentions it as South-African, though without giving any particular locality for it.

298. CAMPEPHAGA MELANOXANTHA (Licht.). Southern Yellow-shouldered Caterpillar-eater.

Mr. Layard cites *Ceblepyris melanoxantha*, Licht., as a synonym of *Campephaga phænicea* (Lath.); but, as I have already stated (*suprà*, p. 45), I believe that "*melanoxantha*" is the correct specific name of the Yellow-shouldered Caterpillar-eater of Southern Africa, as '*xanthornoides*' is of the distinct Yellow-shouldered species of West Africa.

The females, and probably the young males also, of *Campephaga nigra*, *C. phænicea* and *C. melanoxantha* appear closely to resemble each other in plumage; but I am not aware that the female of *C. xanthornoides* has yet been identified.

305. MELENORNIS ATRA (Sundev.). Black Flycatcher.

As Mr. Layard cites this species with apparently some doubt as to its title to admission into his 'Catalogue,' I may refer to a specimen recorded by me (*Ibis*, 1865, p. 268) as having been sent from Natal by Mr. Ayres. This was a female bird, and was believed by Mr. Ayres to have been recently incubating, though he did not succeed in discovering its nest.

311. ENNEOCTONUS AURICULATUS (P.L.S. Müller). Woodchat-Shrike.

Mr. Layard remarks of this Shrike that "it is probably not African," which last word I presume should have been written "South-African," as the Woodchat is a well-known bird in many parts of Africa north of the Equator. The specific name above given is, I believe, the correct one according to the rule of priority.

312. NILAUS CAPENSIS, Shaw. Brubru-Shrike.

As Mr. Layard mentions that he has only received this Shrike from Damara Land, it may be desirable to refer to a specimen which was sent to me from Natal (*Ibis*, 1862, p. 31).

325. LANIARIUS BOULBOUL (Lath.). Boulboul-Shrike.

As it appears from Mr. Layard's investigations that this species is not known to breed in the Cape Colony, I may refer to Mr. Ayres's remark (*Ibis*, 1864, p. 351) that in Natal it "builds a coarse, open nest in a low bush or tree."

Mr. Ayres also mentions that the notes of this Shrike "are loud and curious; the male calls first, and is so immediately an-

swered by the female, that any one not acquainted with the fact would suppose all the notes to be uttered by the same bird."

This habit is also mentioned by Le Vaillant, and a description of a very similar habit in an allied species (*Laniarius erythrogaster*, Rüpp.) is given by Dr. A. E. Brehm (J. f. O. 1856, p. 481) as observed by him in Sennaar.

The synonym of *Laniarius ferrugineus*, Cuvier, applied by Mr. Layard to this Shrike, is, as I learn from Mr. G. R. Gray, in his opinion, a doubtful one; and I have therefore adhered to the name under which I have included the species in my sixth additional List of the Birds of Natal (Ibis, *loc. cit.*)*.

332. *CORVUS CAPENSIS*, Licht., Verz. Doubl. (1823) p. 20. South-African Rook.

This species is included in my fourth additional list of the birds of Natal (Ibis, 1862, p. 152) under the above name, which I believe has priority over the synonym of *Corvus segetum*, Temm. (Rec. d'Ois. 70^{me} livr.), under which it appears in Mr. Layard's 'Catalogue'†.

348. *BUPHAGA ERYTHORHYNCHA*, Stanley. Red-billed Buphaga.

Mr. Ayres has mentioned (Ibis, 1863, p. 328) that this is one

* [On this matter we append the remarks of Prof. Sundeval in his admirable criticisms of Le Vaillant's 'Oiseaux d'Afrique' (K. Vet. Akad. Handl. vol. ii. 1857).

"68. BOUBOU; in colonia frequens et in Caffraria.—*Lanius ferrugineus*, Gm.—(Minime *L. boulboul*, Lath. 49, quæ avis est indica, ægre determinanda, forte *Turdus pæcilopterus*, Vig.? sec. Bp. Csp. 274. Hinc tamen male orta sunt nomina:) *Dryoscopus!* *boulboul* Bp. Csp. 361, et *Malaconotus boulboul*, Cab. Mus. Hein. 69.—*M. rufiventris*, Sw. Classif. ii. p. 220 (ex Levaill.).—*M. ferrugineus*, nob. (ex litteris nostris a Bp. l. c. allatus)."

This learned author also observes further that "Boulboul" is the common Indian name for *Pycnonotus bengalensis*, and not to be confounded with the "Boubou" of Le Vaillant.—ED.]

† [It would appear, from a recent paper by Mr. Cassin (Proc. Acad. N. S. Philad. 1867, p. 216), that the name *C. afer* was conferred on this species in 1802 by an author in the 'Encyclopædia Londinensis' (v. p. 237); but it is as yet unknown who that author was.—ED.]

of the most useful birds of Natal, its food consisting entirely of *Acari* or ticks, which it picks from the cattle ; but Sir Samuel Baker, in his recent work (' The Albert N'yanza Great Basin of the Nile '), does not give the *Buphaga* so good a character. After describing a bird which is evidently either the present species or its near ally *B. africana*, Linn., he says (vol. i. p. 107) :—" It is a perfect pest to the animals, and positively eats them into holes. The original object of the bird in settling upon the animal is to search for vermin ; but it is not contented with the mere insects, and industriously pecks holes in all parts of the animal, more especially on the back. I was obliged to hire little boys to watch the donkeys, and to drive off these plagues ; but so determined and bold were these birds, that I have constantly seen them run under the body of the donkey, clinging to the belly with their feet, and thus retreating to the opposite side of the animals when chased by the watch-boys. In a few days my animals were full of wounds, excepting the horses, whose long tails were effectual whisks." And again (vol. i. p. 343) :—" I have now only fourteen donkeys ; these are in good condition, and would thrive, were not the birds so destructive by pecking sores upon their backs. These sores would heal quickly by the application of gunpowder, but the birds irritate and enlarge them until the animal is rendered useless. I have lost two animals simply from the attacks of these birds" *.

355. } HYPHANTORNIS OLIVACEUS (Hahn). Cape Weaver-
356. } bird.

I am indebted to the kindness of Dr. Hartlaub for the following statement of the intricate synonymy of this species :—

" *Icterus olivaceus*, Hahn, Vögel aus Asien, &c. Liefer. 6 (1822), fig. 4 (*fig. opt.*).

" ? *Oriolus capensis*, Gmel., S. N., p. 392 ; Pl. Enl. 607, fig. 2 (♀) ?

" *Icterus caffer*, Licht., Verz. Doubl. (1823), p. 19. nos. 186, 187 (♂, ♀).

" *Ploceus abyssinicus*, Cuv. ; Less., Tr. d'Orn. (1830), p. 434.

* [We have to mention our obligations to Dr. Ewing for calling our attention to these interesting passages.—ED.]

" *Ploceus aurifrons*, Temm., Pl. Col. 175, 176 (♂, ♀).

" — *icterocephalus*, Swains., Nat. Hist. B. i. p. 189.

" — *capensis*, Smith, Ill. Zool. S. Afr., *Aves*, pl. 66, fig. 2 (sat. accur.).

" *Hyphantornis capensis* et *H. aurifrons*, Bonap., Consp. Av. i. p. 440; Reichb., Singvögel, figg. 315, 318; Layard, B. S. Afr. p. 179. nos. 355, 356."

EUPLECTES XANTHOMELAS, Rüpp. Northern Black-and-yellow Finch.

ESTRELD A CUCULLATA (Swains.). Hooded Finch.

ESTRELD A CARMELITA, Hartl. Carmelite Finch.

The occurrence in Natal of these three species, which are not included in Mr. Layard's 'Catalogue,' is recorded in the present volume of 'The Ibis' (pp. 46 and 51).

384. ESTRELD A MELANOGENYS, Sundev.

386. ESTRELD A DUFRESNII (Vieill.). Dufresne's Finch.

Mr. Layard gives these as distinct species; but, according to Dr. Hartlaub (Orn. Westafr. p. 142), the former is only a synonym of the latter.

390. ESTRELD A POLYZONA (Temmm.). Little Bar-breasted Finch.

395. ESTRELD A SUBFLAVA (Vieill.). Sanguineous Finch.

As Mr. Layard does not appear to have personally met with either of these birds in South Africa, I may refer to Mr. Ayres's statement (Ibis, 1863, p. 329) that the first is found in Natal "from May to August or thereabouts," and, as regards the second (which I have included in my sixth additional list of Natal birds under the synonym of *E. sanguinolenta*, Temm.), that he once met with a flight of them "near Maritzburg in July" (Ibis, 1864, p. 352).

458. BUCORVUS ABYSSINICUS (Gm.). Abyssinian Hornbill.

The observations of Mr. Ayres as to the food of this species, and also as to its mode of attacking and dispatching snakes, have been placed on record (Ibis, 1861, p. 132, and 1862, p. 37), and are, I think, very curious as illustrating the voracious and indiscriminate appetite of this remarkable bird.

Some interesting particulars are recorded (Naumannia, 1857, pp. 109, 110) by Vierthaler of a bird of this species which was obtained by him during his journey through Sennaar. This individual was a solitary nestling, found by one of the traveller's attendants in the "roomy hollow of a mimosa." It was reared by Vierthaler on raw meat, and was preserved alive for some time during his boat-voyage on the Blue Nile and subsequent residence in the town of Chartum. In his account of its habits in captivity, the Doctor remarks that "it never left the barge; and if put ashore, it soon returned to its old place. It entered into friendly relations with a Monkey which was fastened by its side, and allowed itself to be kissed by the Monkey, and to have its feathers examined; frequently, indeed, the Monkey pulled the bird's head unmercifully down to him, pressed it into his lap, and violently forced its bill open, without the bird showing the least concern about it. Even at Chartum, where the bird walked about the courtyard unrestrained, it paid a daily visit to the Monkey, and they carried on their sport together for hours. There were several Monkeys tied up in the yard; but the bird well knew its friend, and never went to any of the others. This friendship continued until the death of the bird."

Three fine specimens of this Hornbill are now living in the menagerie of the Zoological Society of London; and, judging from them, and from a fourth lately dead, it would seem that the scarlet colouring of the throat is peculiar to the adult male, the throat of the adult female being of a dull dark blue.

493. *CHALCITES AURATUS* (Gmel.). Didric-Cuckoo.

Mr. Ayres has recently sent the egg of this Cuckoo to Mr. Tristram, from the Transvaal, accompanied with the following note:—"This bird is here during the summer months, disappearing in the autumn; it lays its eggs in some other bird's nest." Of course the "summer months" here referred to are the months of the South-African summer, which must be borne in mind by English readers. Mr. Tristram informs me that the egg above mentioned is very like some of the lighter-coloured eggs of the British House-Sparrow, and also very like the egg of the Great Reed-Warbler, *Calamoherpe arundinacea* (Linn.), from which,

however, it may be distinguished by its rich gloss, and by being slightly smaller and more elliptical.

495. *CHALCITES SMARAGDINEUS* (Swains.). Emerald Cuckoo.

Mr. Layard, under the head of this species, remarks that "all the Cuckoos of South Africa appear to be migratory, the majority of them making their appearance in the colony about October or November; some a little later." A question naturally arises as to how far northwards the South-African Cuckoos migrate to pass those months during which they are absent from their southern haunts. In connexion with this inquiry, I may quote the statement of Dr. H. Dohrn (P. Z. S. 1866, p. 329), that this species is found on Prince's Island, in the Gulf of Guinea, from the month of April to that of September.

502. *TRERON DELALANDII*, Bonap. Delalande's Tree-Pigeon.

As Mr. Layard only cites Kaffraria as a locality for this species, I may mention that Mr. Ayres has sent it to me from Natal (Ibis, 1862, p. 33), and informs me that he has also met with it in the Transvaal.

505. *COLUMBA TRIGONIGERA*, Wagl. Roussard-Pigeon.

This Pigeon, which Mr. Layard considers to be identical with its more northern congener, *C. guinea*, Linn., was treated by Bonaparte (Consp. Av. ii. p. 50) as a distinct species, and, as I think, with sufficient reason, the wings in *C. trigonigera* being an inch longer than in *C. guinea*, the triangular white spots on the upper wing-coverts smaller, and the colouring on the rump decidedly darker.

513. *PERISTERA AFRA* (Linn.). Bronze-spotted Dove.

Vierthaler (Naumannia, 1852, pt. i. p. 48) mentions a nest of this Dove (under the synonym of *P. chalcospilus*) which he found in Sennaar, consisting of a few twigs placed in "the hollow of a broken-off stem" about five feet high, on which was deposited "a yellowish-white" egg. A notice of the occurrence of this species in Natal will be found in the present volume (p. 48).

[To be continued.]

XIII.—Notes on Various Indian Birds.

By R. C. BEAVAN, Capt. Bengal Staff Corps, C.M.Z.S.

[Continued from p. 85.]

657. *CORVUS CORAX*. European Raven.

Numbers of these birds may be found around Umballah in the cold weather; most of them disappear again, but some remain to breed. I found a nest in a large Banyan (*Ficus indica*), on the Native Infantry Parade-ground at Umballah, on the 28th March, 1866. It contained a nearly fledged young one, which was kept by my brother for some time as a pet. One of the old birds procured on that day measured as follows:—Length 24·75; wing 16·5; tarsus 2·5; extent 24; bill from front 3, height of bill at base 1·25; middle toe and claw 2; tail 9·625, cuneiform—the outer feathers shorter than the rest by 1. Irides dark brown.

660. *CORVUS CULMINATUS**. Indian Corby.

I shot a Crow in the act of chasing some small birds on the top of Mount Tongloo in 1862, which Mr. Blyth referred to this species; but I am inclined to doubt that it was so, on account of the elevation of the locality (10,000 ft.). It is common both at Barrackpore and in Maunbhoom, where it breeds in March, making a nest of sticks, and laying generally three eggs, like those of the English Rook, but perhaps more elongated, measuring 1·5625 by 1·1875.

This bird is very fond of “discoursing,” if I may so term it: he comes and sits on a bough over one’s tent, and talks away to himself in the most amusing manner, giving utterance to a variety of queer and, to us, incomprehensible sounds.

661. *CORVUS INTERMEDIUS*†. Black Hill-Crow.

This is the common species at Simla, and takes the place there of *C. culminatus* of the plains, than which it is decidedly

* [We are indebted to Lord Walden for a reference to Dr. Pucheran’s statement (R. Z. 1853, p. 547), from which it appears that this name, bestowed by Col. Sykes in 1832, must give way to that of *C. levaillanti*, given to the species in 1831 by Lesson (Tr. d’Orn. p. 328).—ED.]

† [Prof. Schlegel (Mus. P.-B., *Coraces*, p. 16) is inclined to refer this species to the preceding; but we are informed by Lord Walden that he regards it as decidedly distinct.—ED.]

smaller, and has a proportionally longer tail. In habits the two are much alike; but the Hill-Crow has a peculiarity (which I have not noticed in any other species) of soaring high in air of an evening, generally in circles, like the Kites and Vultures. Its croak, too, is quite distinct from that of *C. culminatus* in the plains. According to Col. Tytler, this species breeds at Simla in July and August, on the tops of the Deodars, making a nest of sticks, in which it lays two eggs; these resemble those of the allied species, but are elongated, and perhaps more longitudinally spotted. Two specimens measure respectively 1·875 by 1·1875, and 1·8125 by 1·1875.

663. *CORVUS SPLENDENS*. Common Indian Crow.

Abundant everywhere. Extends as far as Akyab certainly (J. A. S. B. 1863, p. 76). In Burmah proper (that is, lower down) it is replaced by a form which wants the grey neck (*cf.* Ibis, 1867, p. 35). The dimensions of a specimen killed at Moulmein in September 1865 are as follows:—Length 17; wing 10·375; tail 6·75; tarsus 1·875; bill from front 2·125; irides dark brown. At Umballah I have observed Crows in large numbers flying along the grand trunk-road over twenty miles of an evening for the sake of roosting in the station, returning in the morning the same distance,—a fact corroborated by Dr. Jerdon and the late Dr. Scott. This, however, only occurred in the cold weather, when the trees of a night were black with their numbers, and the odour of so many thousands close to one's sleeping-room was not pleasant. I have not observed them congregating in this way in any other part of the country that I have visited; and it is difficult to account for the object the birds may have in doing so, unless it be the warmth they mutually afford each other, which must be a consideration to these tropical birds in the early mornings of December and January, with the thermometer below the freezing-point.

The dimensions of four birds are as follows:—

	Length.	Wing.	Tail.	Tarsus.	Bill.	Height of.	Spread ft.	Extent.
Simla,								
May 4, A.	19	11·5	8	2	2·25	·9375	3·25	34·
„ B.	19	12	8	2·25	2·25			
July 5, C.	19·75	12	8	2	2·125			
„ D.	19·75	11·75	7·75	2·125	2·125	·875	3·5	34·5

Head, nape, breast, and lower parts dull, dark brownish-black; back and upper tail-coverts partially so; wings and tail black, with purple reflections. Irides dark brown; orbital skin black, but below the eyes flesh-coloured. Bare skin on each side below the lower mandible, and at the gape, pinkish flesh-colour. Upper mandible, and terminal half of lower mandible, black; rest of the latter lead colour, becoming lighter at the base. Inside of mouth the same; soles dirty-brown; legs and claws black.

666. NUCIFRAGA HEMISPILA. Himalayan Nutcracker.

I shot a solitary specimen on the ground, at the watershed of the Balasun and Little Rungeet rivers, on the march to Tongloo in April 1862, starting from Darjeeling.

Mahasoo, Oct. 2, 1866. This bird is apparently not uncommon on this range, though very scarce close to Simla.

Length 14·75; wing 8·5; tail 5·5; tarsus rather more than 1·5; spread of foot underneath 2·25; bill from front 1·75, from gape 2·125; extent 24; irides dark-brown. The bill and legs of this specimen are covered with a black pitch-like substance.

In this female the head is jet-black; wings black, tending to brown on the tertials and upper wing-coverts; the tail has twelve feathers, the middle pair black, the rest with tips of pure white, increasing in length from the middle outwardly till the exterior pair are half white. Under tail-coverts more white, the rest of the bird brown, with white centres to the breast-feathers.

The Himalayan Nutcracker is tolerably abundant in the ilex-woods about Fagoo dāk-bungalow. It is generally seen in pairs, but is exceedingly wary and difficult of approach. Its loud harsh scream may frequently be heard from the bungalow itself, and the bird occasionally seen flying from tree to tree, or soaring, now and then, Flycatcher-like; but one can seldom get within shot of it. At Annandale I once saw a pair about the gardens. They probably visit the woods there during the winter months, when driven down by heavy snow.

Dr. Stolickza had several of these birds in his collection (Ibis, 1867, p. 142).

669. *GARRULUS BISPECULARIS* *. Himalayan Jay.

	Length.	Wing.	Tail.	Tarsus.	Bill.	Gape.	Extent.
A.	13.25	6.75	6	1.625	1		17
B.	12.375	6.125	5.5	1.5	.9375	1.25	17 to 17.5
C.	13	6.5	5.75	1.375	1	1.25	18.25

Spread of foot in the last specimen, shot 25 Sept. 1866, is 2.125; the irides are purplish, surrounded by a yellowish-brown ring. In the second the bill is dark lead-colour; legs flesh-colour, claws a little darker; irides deep brown. This specimen, a female, I shot at Fagoo, 4th Aug. 1866, out of a flock of seven or eight, which were not particularly wary. In the first specimen, which was shot by my brother at Mahasoo, 12th May 1866, the legs were pale flesh-colour, with darker claws, and the bill nearly black.

670. *GARRULUS LANCEOLATUS*. Black-throated Jay.

Very abundant about Simla, and perhaps one of the most characteristic birds of the place. "Black-throated" is a misnomer when applied to this species; for the throat-feathers are white. Bill pale bluish horn-colour, legs and claws lead-colour; irides pinkish brown. Length 13.25; wing 6.5; tail 6.75; tarsus 1.5; bill from front barely 1, the upper mandible overhanging the lower one considerably. The head is well crested. Another specimen measures as follows:—Length 13.375; wing 6.375; tail 6.5; tarsus 1.5; bill from front .875, from gape 1.1875.

671. *UROCISSA OCCIPITALIS* †. Red-billed Blue Magpie.

Simla, June 15, 1866. Specimen in the flesh. Bill orange-red; legs coral-red, with dusky claws. Length 25.5; wing 7.625; tail 16.5; tarsus 8.875; spread of foot underneath

* [Prof. Schlegel (*op. cit.* p. 60) regards "*G. sinensis*, Gould" (P. Z. S. 1862, p. 282), which does not seem to have been described in due form, as specifically identical with this species.—ED.]

† [Respecting the confused synonymy of this species, compare the observations of Prof. Schleg. (Mus. P.-B., *Coraces*, pp. 69, 70), who, however, deems the Indian and Chinese birds specifically identical. If they be regarded as distinct, Mr. Blyth's name above given should be applied to the first, as is done by Dr. Jerdon in his 'Appendix' (B. Ind. iii. p. 873).—ED.]

2.125; bill from front 1.375, height at base .6875. The fully fledged young bird has a great deal of dark purple about the bill, which evidently only acquires its orange-red in the mature adult. In two specimens of the young now before me one has the bill nearly black, and the other much the same colour, but with orange-yellow at the tip, and along the ridges of both mandibles. The under wing-coverts, and quills of wings underneath in these are light saffron-yellow; and the lower parts generally are of the same hue, somewhat lighter in tint; legs dull red, claws darker.

672. *UROCISSA CUCULLATA*. Yellow-billed Blue Magpie.

I obtained one in April 1862, on the road to Tongloo, at an elevation of about 8000 feet.

At Simla, in July 1866, my shikaree brought a somewhat damaged specimen of this bird, which was the only one I ever saw there. At first I took it for the preceding species, until happening to put all my specimens of the genus side by side, I was at once struck by the difference of colour in the bill; but otherwise the two birds very nearly resemble each other.

673. *CISSA SINENSIS*. Green Jay.

Darjeeling collection, 1862, obtained at an elevation of about 8000 feet. I have seen specimens collected in Tipperah*.

674. *DENDROCITTA RUFA* †. Common Indian Magpie.

Common about Barrackpore, where it breeds. Rare in Maun-

* There seems to be some error in the dimensions assigned to the length and expanse of this bird by Dr. Jerdon.

† [Lord Walden has been good enough to send us the following note:—"The name *rufus* was given to the common Indian Magpie by Latham (Ind. Orn. i. p. 161), and not by Scopoli, although generally attributed to the latter by all writers (Sundevall excepted) since Mr. Blyth (J. A. S. B. 1846, p. 30) quoted Scopoli as the authority. Latham described his 'Rufous Crow' (Synops. Suppl. i. p. 84) from Sonnerat's description and plate (Voy. Ind. ii. p. 186, pl. 106) of his 'Pie rousse de la Chine'—a plate which Scopoli omitted to notice in his paper on Sonnerat's specimens (Fl. & Faun. Insub. ii. p. 84). Latham's name *rufus* takes precedence, though by a few pages only, of his name *ragabundus*; but this last designation, founded on Lady Impey's drawings, will have to be adopted for the Indian bird, should a Chinese representative be discovered differing specifically from the Indian form."—ED.]

bhoom, and also about Moulmein, where I obtained a specimen, Sept. 23, 1865. Length 16·375; wing 5·875; tail 10·125; tarsus 1·1875; bill from front 1·125, height at base ·5625; irides dark brown, bill and legs dark lead-colour. I observed this bird also about Umballah in 1866.

676. *DENDROCITTA SINENSIS*. Himalayan Magpie.

Common in small parties about Darjeeling. It was also not uncommon about Simla.

The dimensions of three specimens in the flesh are as follows :—

	Length.	Wing.	Tail.	Tarsus.	Bill.	Gape.	Extent.
A.	16·375	5·75	10	1·1875	1·25		
B.	17·125	5·875	10·125	1·0625	1·1875		16·5
C.	17·	5·875	10·5	1·0625	1·		16·

These dimensions slightly exceed those given by Dr. Jerdon, especially in the length of the tail.

677. *DENDROCITTA FRONTALIS*. Black-browed Magpie.

Darjeeling collection, 1862. One specimen.

679. *FREGILUS HIMALAYANUS*. Himalayan Chough.

I procured a few specimens of this bird at Simla, but from a native shikaree.

Of *Pyrrhocorax alpinus* I was not able to get a single example (*cf.* Ibis, 1867, p. 137).

681. *STURNUS VULGARIS*. Common Starling.

Abundant at Umballah in January 1866.

Dimensions of four specimens in the flesh :—

	Length.	Wing.	Tail.	Tarsus.	Bill.	Extent.
A.	9	5	2·625	1·125	1·0625	14·5
B.	9	5·0625	2·5	1·125	1	14·75
C.	8·875	5·0625	2·625	1·12	·95	14·85
D.	..	5·25	2·75	1·25	1·12	15·1

Legs chocolate-colour, with black claws.

Bill nearly black, or dark horn-colour.

683. *STURNOPASTOR CONTRA*. Pied Starling.

One of the commonest birds about Barrackpore, where it breeds. Rarer in Maunbhoom, and still more so at Umballah.

Bancoorah, April 22, 1865. I noticed a pair beginning to build in a teak tree, in an upper fork of which was a kite's nest with a young one in it. The Starlings have chosen a low bough, and do not appear to care for the kites. The tree is, moreover, totally devoid of leaves.

685. *ACRIDOTHERES GINGINIANUS*. Bank-Myna.

Abundant at Umballah in November 1866.

686. *ACRIDOTHERES FUSCUS*. Dark Myna.

Moulmein, Aug. 26, 1865. Length 9·25; wing 4·75; tail 2·875; bill from front ·875; tarsus 1·5; irides yellow. As is the case with this, all the Burmese representatives of Indian birds appeared smaller (*cf.* P. Z. S. 1866, p. 552).

687. *TEMENUCHUS PAGODARUM*. Black-headed Myna.

Dr. Jerdon's description of this well-known and common bird is somewhat brief. The "white edge near the shoulder" of which he speaks is caused by the under wing-coverts, which are white, and the quills are greyish. The belly, under tail-coverts, and thigh-coverts are greyish-white. The irides are white; and there is a triangular patch of bare white skin behind the eye, between the ear-coverts (the feathers of which are lanceolate) and crest. The tarsus and feet bright yellow.

A male bird of this species in confinement, when excited or pleased, was fond of erecting its crest and puffing out all its breast-feathers, spreading its tail, and uttering a few pleasing notes. It was exceedingly tame, and allowed to roam about. It would fly to me when called, and perch on my finger. It ate anything soft: rice soaked in milk was its usual food; but it also devours with avidity grasshoppers, moths, ants occasionally, small insects, and soft fruit. The species is rare in Maunbhoom and at Umballah.

688. *TEMENUCHUS MALABARICUS*. Grey-headed Myna.

Common about Barrackpore in small parties, rarer in Maunbhoom.

690. *PASTOR ROSEUS*. The Rose-coloured Starling.

At Barrackpore, in February 1864, this species occurred feed-

ing in small parties on the flowers of the "Semul" or cotton-tree (*Bombax heptaphyllum*).

Perulia, Maunbhoom, April 1864. Enormous flocks of these birds may be seen every evening flying to the islands in the lake here, where they roost in trees, together with *Acridotheres tristis* and *Sturnopastor contra*, Herons and Cormorants; but the flocks of *P. roseus* are by far the largest, and, when they rise suddenly from the trees on hearing the report of a gun, create a rushing sound, and appear like a vast animated cloud. They fly, too, much faster than the allied species, and may be easily distinguished from the latter by their arrowy flight, which is very similar to that of the common English Starling. They have only lately been noticed here, and, as the breeding-season of most birds is already far advanced, can scarcely have time, one would think, to get to Western Asia, as supposed by Dr. Jerdon, for the purpose of nidification.

692. *EULABES RELIGIOSA*. Southern Hill-Myna.

Caged specimens of this bird are frequently seen in Maunbhoom, which are said to be captured in the hilly country to the south of the district. Col. Tickell does not, however, include it in his list of the birds of Borabhoom and Dhulbhoom (J. A. S. B. ii. p. 569).

694. *PLOCEUS BAYA*. Common Weaverbird.

Common in Maunbhoom, near Calcutta, Burmah, and near Umballah, as far as my experience goes. At Moulmein it associates with Sparrows, about stables and out-buildings.

699. *MUNIA UNDULATA*. Spotted Munia.

Observed at Barrackpore in 1864, in Maunbhoom 1855, and Burmah 1865 (*cf.* P. Z. S. 1866, p. 552).

701. *MUNIA STRIATA*. White-backed Munia.

At Ramnuggur, Maunbhoom, March 13, 1864, I fired into a flock of these birds feeding on chaff in a village, killing four.

The following are the dimensions of two of them :—

	Length.	Wing.	Tail.	Tarsus.	Extent.
A.	4.75	2.1	1.75	.5	6.5
B.	4.25	2.1	1.5	.5	6.375

The first, apparently the older bird, is slightly lineated with brown on the belly and flanks.

The upper mandible is blue-black, the lower light leaden-blue; legs plumbeous. A nest of this species (like that of *M. malacca* described by Dr. Jerdon), containing only three eggs, was brought to me on April 3rd.

702. *MUNIA ACUTICAUDA*. Himalayan Munia.

(Conf. P. Z. S. 1866, p.552.) Tolerably common in gardens near Moulmein. A specimen in the flesh, obtained in Sept. 1865, measured as follows:—Length 4·625; wing barely 2; tail about 1·7; tarsus ·5; bill from front ·4375; middle tail-feathers barely exceed the rest. Upper mandible dark horn-colour, lower light leaden-blue; legs dull plumbeous.

703. *MUNIA MALABARICA*. Plain Brown Munia.

Rarely met with in Maunbhoom, where I only procured one or two specimens.

704. *ESTRElda AMANDAVA*. Red Waxbill.

Only seen once in Maunbhoom, in 1864.

706. *PASSER INDICUS*. Indian House-Sparrow.

Common at Barrackpore, in Maunbhoom, and at Umballah. At Simla in 1866 three specimens of a Sparrow were brought in, not at all like the adult of *P. indicus* of the plains; and all those I noticed at Simla were apparently of this form. I sub-join the dimensions:—

	Length.	Wing.	Tail.	Tarsus.	Bill.	Extent.
A.	5·25	2·625	1·87	·875	·375	8
B.	5·375	2·75	1·875	·875	·4375	8
C.	5·5	2·75	2	·6875	·4375	8

The whole of the under parts in these are dirty white; the first differs from the other two in being much darker on the upper parts; bill and feet lead-colour, the latter lighter; the upper parts rufous, with the usual markings on the wings. The second and third have the bill stouter than the first, the markings and colour of back much lighter; no supercilium or wing bands; bill and legs more flesh-coloured. I at first thought these birds were females of *P. cinnamomeus*; but there was no

trace of yellow below, and the markings on the back also differ slightly.

708. *PASSER CINNAMOMEUS*. Cinnamon-headed Sparrow.

Very abundant at Simla. The dimensions of those killed 11th June are :—

	Length.	Wing.	Tail.	Tarsus.	Bill.	Extent.
♂	5·375	2·875	2 to 2·125	·6875	·5	8·125
♀	5·375	2·625	2	·6875	·4375	7·5
♀	5·375	2·625	2	·6875	·4375	7·5

Irides brown; bill black; legs light brown, claws darker. The females differ from the male in having no cinnamon colour on the upper part, except a slight tinge of it on the shoulders and upper tail-coverts. They have a well-defined light-yellow supercilium, but a mere trace of black on the throat; and the under parts are altogether less bright than in the male; the white wing-band also is less conspicuously marked. The species feed on a kind of purple, oval, aloe-like berry growing abundantly on low thorny bushes on the hillside above Annandale.

710. *PASSER MONTANUS*. Mountain-Sparrow.

Common in Burmah, where the natives take great care of it. The outer husk of a cocoa-nut is cut in two and tied together again, with a small aperture left on one side for the entrance of the bird. Several of these thus prepared are hung under the eaves of the house, and sometimes inside the (*quasi*) rooms, and the birds breed in them. The object appears to be a purely religious one; the Burmese think that by thus taking care of these little birds they themselves in their next transmigration will, under the form of Sparrows, receive kindness in the same proportion that they now bestow it. This idea appears also to hold good with regard to other domestic pets, and is, doubtless, of Buddhist origin.

711. *PASSER FLAVICOLLIS*. Yellow-necked Sparrow.

Not uncommon in Maunbhoon, where it breeds early in April, laying four eggs, much like those of the Common Sparrow, but darker, and more spotted. The bill, legs, and claws are

horny ash-colour, the legs slightly tinged with fleshy pink. Length nearly 6 inches in most specimens.

713. *EMBERIZA CIA* (?)*, White-browed Bunting.

This bird, which is abundant about Simla, is found to frequent gardens in all parts of the station, feeding of a morning on the ground, invariably in pairs, and flying up into young fruit-trees when disturbed. Dimensions as follows :—

	Length.	Wing.	Tail.	Tarsus.	Bill.	Extent.
	6·625	3	3	·75	·4375	9·25
♂ ..	6·5	3·375	3	·75	·4375	9·6
	6·5	3·125	3	·75	·4375	9·25

Bill bluish lead-colour; legs dull yellow. The sexes, according to Col. Tytler, are identical in plumage. A nest was brought to me at Fagoo dâk-bungalow, on August 4th, 1866, containing two eggs, which have much of the colour of those of *Fringilla caelebs*, with markings as in *E. citrinella*; that is, they are of a pale pinkish blue-green, with blotches and streaks of claret-colour. They measure ·8125 by ·625. The nest is fairly made, of grass lined with hair, and was, I believe, found in a low thick bush.

717. *EMBERIZA SPODIOCEPHALA*. Black-faced Bunting.

One specimen, Darjeeling collection, 1862.

718. *EMBERIZA STEWARTI*. White-capped Bunting.

Dr. Stoliczka's collections (*cf.* Ibis, 1867, p. 140) from the interior, contained several specimens; one, a male, given to me, is marked "Chergaon."

724. *MELOPHUS MELANICTERUS*. Crested Black Bunting.

Darjeeling collection, 1862. Simla collection, 1866.

At Simla in 1866 it was tolerably abundant, and it was also found by the late Dr. Scott feeding in numbers on the ground at Umballah.

	Length.	Wing.	Tail.	Tarsus.	Bill.	Extent.
♂	7	3·375	2·875	·75	·5625	9·25
♀	6·75	3·125	2·75	·8125	·5	9·75

* *Cf.* Ibis, 1867, p. 141. [Specimens from Simla should be closely compared with European examples, before the species to which they belong can be accurately determined.—ED.]

Bill reddish-brown ; upper mandible darker, overlapping the lower at the tip ; legs dark reddish-brown ; claws nearly black.

725. *HESPERIPHONA ICTEROIDES*. Black-and-yellow Grosbeak.

I saw this species for the first time, and obtained specimens, at Fagoo, fifteen miles from Simla, in August 1866. It frequents the tops of the highest pine-trees, and, as stated by Dr. Adams (P. Z. S. 1859, p. 178), the call-note is "loud and plaintive," and can only be described as a loud rolling "tree," somewhat drawn out. Several may be heard at the same time calling to each other. Though apparently abundant about Fagoo, one does not often see the bird, in spite of the brilliant plumage of the male ; they sit so still and quiet. I shot one male on a low bush, near the ground, on the Hindoostan and Thibet road, not far from Fagoo. The bill in both sexes is pale sea-green ; irides brown, and legs flesh-colour. Dimensions as follows :—

	Length.	Wing.	Tail.	Tarsus.	Bill.	Spread foot.	Extent.
♂	9	5.25	3.875	1	.9375	1.875	14.5
♀	9	5	3.5	1	.9375	1.875	14

727. *MYCEROBAS MELANOXANTHUS*. Spotted-winged Grosbeak.

This is a very peculiar-looking bird, the head, with its enormously massive bill, giving it a top-heavy appearance. Irises dark brown ; bill and legs bluish lead-colour, darker at the base and tip of the upper mandible and on the claws. Dimensions :—

	Length.	Wing.	Tail.	Tarsus.	Bill.	Spread foot.	Extent.
♂	8.875	5.25	3	.875	.9375	1.625	13
♀	8.875	5	3	.75	.9375		14

This species frequents the "holly-trees" (*Ilex*) which abound in the partial clearings on the hillsides, but is apparently scarcer than the preceding. Dr. Jerdon's English name is scarcely appropriate ; for there is no spotted appearance except in the lower parts of the female, a transverse white bar across the wing of the male hardly giving the idea of a "spot."

729. *PYRRHULA ERYTHROCEPHALA*. Red-headed Bullfinch.
Darjeeling collection, 1862. Three specimens.

730. *PYRRHULA ERITHACUS*. Red-breasted Bullfinch.

I came across a flock of this new species on my way up Mount Tongloo in April 1862. There were two males and several females picking about the bushes near the path. The females all escaped, but I secured both the males, though one was too much damaged to preserve; the other I sent to Mr. Blyth, who described it in 'The Ibis' for 1862 (pp. 389, 390), and in the following year furnished its portrait (Ibis, 1863, pl. x). This was the only occasion on which I observed the species. The elevation was about 9000 feet.

731. *PYRRHULA NIPALENSIS*. Brown Bullfinch.

Darjeeling collection, 1862. Three specimens.

733. *PYRRHOPLECTES EPAULETTA*, Hodg. Gold-headed Black Bullfinch.

Darjeeling collection, 1862. One specimen.

735. *HÆMATOSPIZA SIPAHI*. Scarlet Grosbeak.

Darjeeling collection, 1862. Two specimens.

738. *CARPODACUS ERYTHRINUS*. Common Rose Finch.

Darjeeling collection, 1862. Four specimens. In September 1866 I observed it abundantly about Simla, but was unable to procure any specimens.

740. *PROPASSER THURA*. White-browed Rose Finch.

About a mile from the summit of Mount Tongloo, in 1862, where they associate in flocks, I procured specimens of this handsome bird, which was at first supposed by Mr. Blyth to be a new species, *P. frontalis* (J. A. S. B. 1863, p. 458); but he has since (Ibis, 1867, p. 44) referred it to *P. thura*.

746. *PROCARDUELIS NIPALENSIS*, Hodg. Dark Rose Finch.

Darjeeling collection, 1862. One specimen.

750. *CHRYSMITRIS SPINOIDES*. Himalayan Siskin.

I came across this elegant little Finch for the first time at Simla, in the summer of 1866, and was so much attracted by its sprightly manners and lively notes, that I immediately manufactured a pair of clap-nets, borrowed a call-bird (which had been knocked down by a soldier at Dugshaie with a stone, and

put into a cage), and set to work in earnest. My greatest difficulty was in finding a spot sufficiently level; but at last I succeeded, by paying for the removal of a standing crop of millet in a field; and, placing my call-bird in a wire rat-trap, I at last enticed an unwary couple between the nets. Then, with brace-and call-birds complete, I caught between thirty and forty in a few days, some of which were given to numerous friends; and I started for England with ten, out of which six arrived in safety, and four of them are at the present moment in the Zoological Gardens. This is, I believe, the first time this species has been introduced into England.

	Length.	Wing.	Tail.	Tarsus.	Extent.
♂ ..	5·375	2·937	1·85	·5625	8·25
♂ ..	5·25	3	1·875	·5625	8·25
♀ ..	5	3	1·75	·5625	8

The bill is strong and triangular, measuring from the front ·375, and from the gape ·4375, and is of a pinkish flesh-colour; the legs are darker flesh-colour, with lighter soles and brownish claws. The spread of the foot is ·125. About Simla the species is not uncommon; the males are generally seen seated on the tip of a Deodar (*Cedrus deodara*), singing at each other.

At Fagoo, August 4th, 1866, I found Siskins extremely abundant—all in pairs, and shot a female in the act of building her nest in a thick epiphytic clump of vegetation, growing at the extremity of the bough of an *Ilex*. These “hollies” are trees with a trunk a foot or more in diameter, and grow to the height of 30 or 40 feet, like short stunted oaks. The usual call of the Siskin in flight reminds me of the Common Linnet; but the song and call of the male (both when at rest, and in its peculiar soaring flight during the breeding-season) remind me much of the Greenfinch; it has a note also very similar to the “bzee-ee-ee” of that bird. The song of the male is very sweet, but frequently ends rather harshly, with the “bzee” note repeated several times in succession.

The young birds of the year did not appear until late at Simla, my first being caught at Mahasoo on September 29th. I had, however, as early as the beginning of that month seen a specimen in Dr. Stoliczka’s collection, made in the interior. The

young have the superciliary streak, throat, wing-band, rump, and basal outer webs of the tail yellow; the head and back greenish-brown, striated longitudinally with dark marks; the breast, flanks, and under tail-coverts are also similarly striated; abdomen greenish-yellow; wings and tail dark brown, the tertials and coverts of the former edged with greyish-yellow. Bill and legs pinkish. The sexes are not distinguishable in this plumage, which was that in which three of my specimens in the Zoological Gardens were clothed on leaving India in January 1867; they have, however, since moulted.

751. *METOPONIA PUSILLA*. Gold-headed Finch.

This is the "Câbulce Bullfinch" of residents at Simla and Umballah, to which latter large numbers are brought in the winter months by the Cabul merchants, in cages, together with Goldfinches and other birds.

754. *MIRAFRA ASSAMICA*. Bengal Bush-Lark.

Not uncommon in Maunbhoom. It flies, on first rising, somewhat like a Quail, then slowly, with a peculiar soaring flight, showing the rounded wing before alighting—in this respect like *Pyrrhulauda grisea* as described by Dr. Jerdon (B. Ind. ii. p. 422). A specimen in the flesh, obtained March 9th, 1865, measured:—Length 6; wing 3·25; tail 2; extent 9·75; tarsus 1.

756. *MIRAFRA ERYTHROPTERA*. Red-winged Bush-Lark.

Rare in Maunbhoom.

At Umballah, November 13th, 1866, I shot a specimen in a small enclosed garden. It alighted on the ground after being first disturbed, and squatted under a low bush, trying, when wounded, to get refuge in a rat-hole. Length 5·125; wing 2·7; tail 1·75; tarsus ·87; spread foot 1·125; hind claw ·25; bill from front ·375, from gape ·5; extent 9·25. Lower mandible flesh-colour, upper mandible dark horn-colour.

758. *AMMOMANES PHENICURA*. Rufous-tailed Finch-Lark.

This species has a very large, robust bill, and excessive extent of wing for its size. It sings very sweetly when flying, and generally perches on the dry hills near the station of Morar, on the

tops of little mounds or hillocks. The flight is somewhat lark-like. Three or four birds were observed at the same time; but they are not common. Bill and legs horny brown. Irides brown. Dimensions:—length 6·75; wing 4·125; tail 2·5; tarsus ·8125; spread foot 1·25; bill from front ·5, from gape ·7; extent 13.

760. *PYRRHULAUDA GRISEA*. Black-bellied Finch-Lark.

Rare about Barrackpore; common in Maunbhoom. I can confirm Prof. Sundevall's account of its habits (*Ann. Mag. N. H.* 1846, xviii. p. 259) as noticed by Dr. Jerdon, having seen it in Maunbhoom in February 1863, singing in the air with expanded wings.

761. *CALANDRELLA BRACHYDACTYLA*. Short-toed Lark.

Common in Maunbhoom in the cold weather. Specimens killed at Kashurghur have a large blackish patch on each side of the breast above.

A specimen from Morar, December 1866, measured:—Length 6·75; wing 3·875; tail 2·5; tarsus ·9375; spread of foot 1·25; bill from front ·375, from gape ·5; extent 11·5. The tertials are equal in length to the primaries.

761 *bis*. *MELANOCORYPHA TORQUATA*. Large Ring-necked Lark.

At Umballah, November 8th, 1866, I purchased from a native a pair of fine specimens alive, which were said to have been brought from Cabul. I have never met with the bird in a wild state in the north of India, although it is said to occur there by Mr. Hume (*Ibis*, 1867, p. 471)*. In general appearance this is a very striking and conspicuous species, both from its size and resemblance to a large Ringed Plover. I attempted to bring this pair of birds home alive for the Zoological Gardens, and got them in safety round the Cape, when they both died in one night. I did not hear them attempt to sing, the whole time I had them; but the natives say that they do so beautifully (*cf.* Jerdon, *B. Ind.* ii. p. 427).

* [Lord Walden informs us that he has received many specimens of this species shot in the neighbourhood of Umballah.—ED.]

765. *SPIZALAUDA DEVA*. Small-crested Lark.

Abundant at Umballah. I put up three or four of these birds out of low cultivation; their flight is somewhat hovering, like that of a *Mirafra*. Length 6·5; wing 3·625; tail 2·25; tarsus barely 1; spread foot 1·5; bill from front ·625, from gape ·8125; extent 12. This specimen agrees with Dr. Jerdon's description; but its measurements are considerably greater than he gives.

767. *ALAUDA GULGULA*. Indian Sky-Lark.

Near Barrackpore I once heard this bird singing in mid air and bringing into its song imitations of the calls of several other birds.

Moulmein, September 1865.—A specimen in the flesh measured:—Length 6·25; wing 3·25; tail 2·375; extent 9; tarsus 1; bill from front ·5625; hind toe and claw ·9375. Another, in moulting-plumage, apparently a young bird of the year:—Length barely 6·5; wing 3·1875; tail 2·5; extent 9; tarsus ·9375; hind toe and claw ·9375; bill from front ·5625.

769. *GALERITA CRISTATA*. Large-crested Lark.

Umballah, January 1866.—Length 7·5; wing 4·625; tail 3; extent 13; tarsus ·9375; bill from front ·4375; hind toe and claw 1·0625; claw alone ·625. Irides dark brown. Bill dark brown at the tip and along the ridge of the upper mandible, the rest pale horn-colour; legs dull fleshy brown; claws darker. The tail extends an inch beyond the tips of the wings; lower parts fulvous white.

XIV.—*Note on Hypocolius ampelinus*, Bp.

By Dr. M. T. VON HEUGLIN*.

(Plate V.)

THE genus *Hypocolius* was established by the late Prince Bonaparte, in his well-known "Conspectus Generum Avium" (i. p. 336); and the only species, *H. ampelinus*, was described by him from two specimens in the Leyden collection. These specimens were brought by the French traveller Botta, not from

* [Kindly communicated by Dr. Harflaub.—ED.]

California, as was originally believed, but from Abyssinia! A generic separation of this very aberrant form is quite necessary. In my opinion it belongs to the family of *Campephaginæ*. The beak and feet are very much like those of the genus *Laniaterus*. The tip of the upper mandible is a little hooked, and before it a distinct indentation appears. The wing-feathers are of middle length, the first is rudimentary, the third longest, the second and fourth of nearly equal length; the inner vane of the second is distinctly angulated; the short feet are robust and distinctly scutellated. The tail is rather long and subcuneate, or strongly rounded. In the year 1850 I received, from Massowah, through the intervention of the French consul, M. de Goutin, some birdskins from the low Abyssinian coast-region, and amongst these a female skin of an unknown bird, which I introduced into my note-book under the name of *Ceblepyris isabellina*, although the stiff, rigid feathers of the lower back were entirely wanting.

It was Dr. Hartlaub who directed my attention to the probability of my *Ceblepyris isabellina* being identical with Bonaparte's *Hypocolius ampelinus*—a fact of which I am now fully convinced. *Hypocolius ampelinus* being as yet one of the rarest birds in collections, I may be allowed to give a figure and description of it.

HYPOCOLIUS AMPELINUS, Bp., Consp. i. p. 336 (1850).—*Ceblepyris isabellina*, Heugl., Syst. Uebers. Vög. N.-O.-Afr., Sitzungsber. K. Akad. Wien, xix. p. 284. no. 308 (1855-56). (Plate V.)

♂. Subcristatus; cristæ plumis laxis, sericeis; delicate isabellino cinereus ex parte vinaceo lavatus; pileo, gula et subcaudalibus purius pallide isabellinis; margine laterali frontis, loris, regione parotica fasciaque nuchali nitide nigricantibus; remigibus primariis nigris, apice late albis; secundariis nigricantibus pogonio externo et apice cinerascente marginatis; tertiariis isabellino-cinereis, basi nigricantibus; subalaribus sordide albidis; rectricibus notæo concoloribus, apicem versus magis magisque nigricantibus; pectoris lateribus cinereo adumbratis; rostro et pedibus pallide corneis, illo apice fusco-nigricante: Long. tot. circa 9", rostr. a fr. 6", al. 3" 9", caud. 4" 3", tars. 11" poll. gall.

♀. Vix minor, ex olivascente griseo-isabellina; pileo, ciliis et

loris obscurioribus; nigredine capitis nulla; remigibus primariis extus pallide fuscescente cano marginatis, limbo apicali lato, conspicuo et abrupte albo; nigredine apicali caudæ minus distincta; subalaribus dilute et sordide isabellinis.

Juv. Similis fœminæ, at sordidius tinctus; remigibus subconcoloribus, absque margine albo.

In the *old male* the black loral band widens considerably in the region of the eye and ear, and unites on the nape. The feathers of the bastard-wing are blackish; the alar margin is white.

I never found an opportunity of observing this bird in the wild state. It seems to be confined to a very narrow district, and to belong exclusively to the low Abyssinian coast-region.

XV.—*List of Birds collected in the Straits of Magellan by Dr. Cunningham, with remarks on the Patagonian Avifauna.*
By P. L. SCLATER, M.A., Ph.D., F.R.S., and OSBERT SALVIN, M.A., F.L.S., F.Z.S.

As already mentioned in the last number of 'The Ibis' (*suprà*, p. 129, *note*), the specimens of birds collected by Dr. Cunningham during the surveying-operations carried on by H.M.S. 'Nassau' in the Straits of Magellan, in the (antarctic) summer of 1866-67, have been placed in our hands for identification. The collection embraces sixty-one specimens, referable to forty-four species, of which a list is herewith given, together with some remarks we have put together concerning some of the more obscure and less known of them. There are, besides, two or three other species, collected at Maldonado, and "at sea," which we have thought it better not to insert in the catalogue, as they belong to a very different avifauna.

Passing over the few species discovered by Forster and the older voyagers, our principal knowledge of the avifauna of Patagonia is due to the collections made by Capt. King, Commander of the 'Adventure,' in the years 1826-30, during the first surveying-expedition of the Straits of Magellan, and to the collections made by Mr. Darwin, naturalist of the 'Beagle'

during the second surveying-expedition of the same region, under the command of Capt. FitzRoy.

Capt. King's first communications on the birds collected during his voyage were published, in the form of letters addressed to Mr. Vigors, in the 'Zoological Journal'*. Unfortunately the descriptions there given of the supposed new species are so short and so vague, that in many cases it is impossible to identify them†. Nor are Capt. King's subsequent, though more matured, descriptions, given in the Zoological Society's 'Proceedings'‡, entitled to much greater praise. A summary of these papers is appended to the first volume of the 'Narrative of the Surveying-Voyages of the 'Adventure' and 'Beagle §', whence it appears that Capt. King obtained altogether from sixty to seventy species of birds on the shores of the Straits of Magellan.

Mr. Darwin's collections, formed during the second surveying-expeditions, were, as every one knows, worked out in a much more elaborate manner. Mr. Gould undertook the determination of the species; but, being unable to complete the task, owing to his departure for Australia, Mr. George Gray assisted Mr. Darwin in finishing the valuable work, which forms the third volume of the 'Zoology of the Voyage of the 'Beagle'.

Here we find recorded the occurrence of seventy-seven species of birds in Southern Patagonia, the principal locality of observation having been the shores of the Magellan Straits, besides which various points were visited on the east and west coast south of latitude 46° S. This list of mostly well-determined species, accompanied, as it is, by Mr. Darwin's valuable notes on the habits and localities, forms by far the most complete account of the Patagonian avifauna yet published.

* Vols. iii. pp. 422-432, and iv. pp. 91-105.

† This would have been of less importance if the typical specimens had been carefully preserved. Unfortunately they are in most cases lost, having been (as we are informed) deposited in the Zoological Society's Museum, and scattered abroad on the dispersal of that collection. Mr. Darwin's specimens were presented to the same collection, but were luckily in most cases removed to the British Museum, where they now are.

‡ "Characters of new genera and species of birds from the Straits of Magellan," P. Z. S. 1830-31, pp. 14-16, and 29, 30.

§ London: 1839.

To obtain an idea of the general character of this avifauna and its origin, we will take the list of Patagonian *Passeres* (the chief order of purely terrestrial birds), as most likely to provide us with trustworthy information on this subject. The well-determined *Passeres* of Southern Patagonia are, as will be seen by the subjoined list*, about thirty in number. Four of these

* *List of Patagonian Passeres.*

	Patagonia.	Chili.	Argentine Republic.
<i>Turdus falklandicus</i>	—	—	
<i>Mimus patagonicus</i>	—		
<i>Troglodytes magellanicus</i>	—	—	
<i>Hirundo meyeri</i>	—	—	
<i>Zonotrichia canicapilla</i>	—		
<i>Phrygilus gayi</i>	—	—	
— <i>formosus</i>	—		
— <i>fruticeti</i>	—	—	
— <i>melanoderus</i>	—		
— <i>xanthogrammus</i>	—		
<i>Sycalis arvensis</i>	—	—	—
† <i>Chrysomitris barbata</i>	—	—	—
<i>Sturnella militaris</i>	—	—	
<i>Cinclodes fuscus</i>	—	—	—
— <i>patagonicus</i>	—	—	
<i>Upucerthia dumetoria</i>	—	—	
<i>Eremobius phoenicurus</i>	—	—	
<i>Oxyurus spinicauda</i>	—	—	
<i>Synallaxis sordida</i>	—	—	—
— <i>anthoides</i>	—	—	—
— <i>ægithaloides</i>	—	—	—
<i>Scytalopus magellanicus</i>	—	—	
<i>Agriornis maritima</i>	—	—	
— <i>microptera</i>	—	—	
<i>Taenioptera pyrope</i>	—	—	
<i>Muscisaxicola mentalis</i>	—	—	
<i>Centrites niger</i>	—	—	—
<i>Anæretes parulus</i>	—	—	
<i>Serpophaga parvirostris</i>	—	—	
<i>Elainea modesta</i>	—	—	—
	30	24	8

only, so far as we know at present, are peculiar to Patagonia; two others (*Phrygilus melanoderus* and *P. xanthogrammus*) are only found in Patagonia and the Falkland Islands. The remaining twenty-four are all met with in Chili, while only eight out of these occur in the Argentine Republic, and these eight are species likewise found in Chili. It would seem therefore that, so far as we can judge by the character of the Passerine avifauna, *Patagonia belongs strictly to the same zoological province of the Neotropical Region as Chili*, and has probably received its bird-population from that country.

Having said thus much upon the general *facies* of the Patagonian avifauna, we return to Dr. Cunningham's collection. Nearly the whole of the species it contains are such as have been already obtained in the same locality by Capt. King and Mr. Darwin.

1. *TURDUS FALKLANDICUS*, Quoy & Gaim.

One specimen in nestling plumage. Sandy Point, Dec. 26th. "Iris blue."

2. *PHRYGILUS GAYI*. *Fringilla gayi*, Gould, Zool. Voy. 'Beagle,' iii. p. 93.

One skin. Gregory Bay, May 1st. This skin agrees with those determined as *P. gayi* in the 'Zoology of the 'Beagle'.' But we suspect there has been some error here, and that the allied but smaller species, described by Mr. Gould as *Fringilla formosa* (*loc. supr. cit.*), is the true *F. gayi* of Eydoux and Gervais. To ascertain this point without doubt, it will be necessary to consult the typical specimens in the Paris Museum, which we have not yet had an opportunity of doing.

3. *CHRYSOMITRIS BARBATA* (Mol.).

Gregory Bay, May 19th. Two skins in immature plumage.

4. *STURNELLA MILITARIS* (Linn.); Cunningham, *anteà*, p. 126.
One example, from near Cape Possession, Jan. 1867.

5. *CINCLODES PATAGONICUS* (Gm.).

Sandy Point, May.

6. *CINCLODES FUSCUS* (Vieill.).

Sandy Point, May.

7. UPUCERTHIA DUMETORIA, Geoffr. & d'Orb.

Possession Bay, January. A short-billed specimen, such as is spoken of by Mr. Darwin (Zool. 'Beagle,' iii. p. 66) as occurring in Patagonia.

8. OXYURUS SPINICAUDA (Gm.). *O. tupinieri*, Less.; Cunningham, *anteà*, p. 125.

Sandy Point, February.

9. SCYTALOPUS MAGELLANICUS (Lath.). *S. fuscus*, Gould.

Sandy Point, May.

10. MYIOTHERETES RUFIVENTRIS (Vieill.).

Possession Bay, January.

11. TENIOPTERA PYROPE, Kittl.

One skin, from Port Famine, resembling Chilian specimens, but with the first two primaries not excised,—perhaps a female of this species.

12. MUSCISAXICOLA MENTALIS (Lafr. & d'Orb.).

Sandy Point, April.

13. CENTRITES NIGER (Bodd.).

Sandy Point.

14. CERYLE STELLATA, Meyer.

Port Galant, March. We are not yet quite convinced as to the propriety of uniting this western and southern form with *C. torquata*. We have seen young specimens of *C. torquata* spotted as much as the present bird; but, on the other hand, *C. stellata* seems to be always smaller in size, particularly as regards the bill, and never to attain the unspotted dress of the adult *C. torquata*: at least we have not yet met with unspotted specimens of *C. stellata*.

15. CAMPEPHILUS MAGELLANICUS (King); Cunningham, *anteà*, p. 126.

Sandy Point, December.

16. CONURUS CYANOLYSEUS (Mol.)

Sandy Point, March.

17. MILVAGO CHIMANGO (Vieill.).

Sandy Point, December.

18. POLYBORUS THARUS (Mol.). *P. brasiliensis*, Cunningham, *antèa*, p. 125.

Gregory Bay, May; Elizabeth Island, February.

19. BUTEO ERYTHRONOTUS, King.

Sandy Point.

20. ACCIPITER CHILENSIS (Phil. & Landb.), Sel. and Salv., Ex. Orn. pl. xxxvii.

One specimen in immature plumage, from Sandy Point (February).

21. TINNUNCULUS SPARVERIUS (Linn.).

Sandy Point, February.

22. CIRCUS MACROPTERUS (Vieill.).

Sandy Point. An immature specimen. May. This species is not mentioned by Mr. Darwin, nor, so far as we know, by other authors, as occurring in Patagonia. Other skins in Dr. Cunningham's collection are from Maldonado.

23. OTUS BRACHYOTUS (Linn.).

Philips Bay, Fuegia, April.

24. BUBO MAGELLANICUS (Gm.).

Santiago Bay and Sandy Point, February and December.

25. GLAUCIDIUM NANUM (King).

Sandy Point, May.

26. PHOLEOPTYNX CUNICULARIA (Mol.).

Neighbourhood of Cape Vincent, Fuegia, April. Mr. Darwin states that he never saw this bird south of the Rio Negro (*loc. cit.* p. 31).

27. ATTAGIS FALKLANDICA (Gm.).

Peckett Harbour, March.

28. THINOCORUS RUMICIVORUS, Eschsch.

Peckett Harbour, March.

29. EUDROMIAS MODESTA (Licht.).

Sandy Point, December, in summer plumage; and Peckett Harbour, January, also in summer plumage.

30. ÆGIALITIS FALKLANDICUS (Lath.).

Sandy Point, December, in summer plumage; and Gregory Bay, May, in winter plumage.

31. OREOPHILUS RUFICOLLIS (Vieill.).

Sandy Bay, April.

32. GALLINAGO PARAGUAIÆ (Vieill.).

Sandy Point, December.

33. NYCTICORAX OBSCURUS (Licht.) ; Bp. Consp. ii. p. 141 ;

Sclater, Ibis, 1861, p. 312.

Oazy Harbour, March.

34. THERISTICUS MELANOPIS, Lath. ; Cunningham, *anteà*,

p. 126.

Elizabeth Island, February.

35. PHENICOPTERUS IGNIPALLIATUS, Geoffr. & d'Orb.

A young bird from Gregory Bay, April 30th.

36. CHLOEPHAGA MAGELLANICA (Gm.) ; Cunningham, *anteà*,

p. 127.

Santiago Bay, April.

37. CHLOEPHAGA POLIOCEPHALA, Sclater, P.Z.S. 1858, p. 290.

"Chesnut-breasted Goose," Cunningham, *anteà*, p. 127.

Oazy Harbour, March.

38. MICROPTERUS CINEREUS (Gm.) ; Cunningham, *anteà*, p. 127.

Sandy Point, December.

+ 39. QUERQUEDULA CYANOPTERA (Vieill.).

Sandy Point.

40. DAFILA, sp. ign.

A single specimen of a female Duck from Sandy Point (December), not referable to any species we are acquainted with.

41. PHALACROCORAX CIRRHATUS (Gm.). *Hypoleucus cir-*

rhatus, Bp. Consp. ii. p. 174.

Magellan's Straits.

42. PODICEPS ROLLANDI (Quoy & Gaim.).

Sandy Point, one example, immature.

43. LARUS DOMINICANUS (Licht.).

Sandy Point (June).

44. FULMARUS GLACIALIOIDES (Smith).

No exact locality given.

XVI.—*Notes on the Birds observed during a march from Simla to Mussoorie.* By ROBERT C. TYTLER, Colonel in Her Majesty's Indian Army, C.M.Z.S. &c.

SINCE the route I took (by Phagoo, Putturnulla, and Deobund) is but little known, owing to the bad and difficult state of the road, and more especially the very fatiguing ascents and descents that have daily to be encountered, I will, before entering upon the avifauna of the country passed through, copy from my journal a list of the stages, with a brief description of each day's march. This will enable the reader to form some idea of the genera and species likely to be met with at each place. I left Simla on the 12th of June, 1867, and arrived at Mussoorie, a distance of 143 miles, on the 29th of the same month, which gave me sixteen marches and two halts. My first march was to

Mahassoo (6500) * :—7 miles. Along the new Thibet road, which is broad, level, and good, through a well-wooded country. Atmosphere cool and pleasant ; slight showers of rain during the day. Wild flowers in great abundance.

Phagoo (7000) :—4 miles. A very short and easy march along the same road, and the same kind of country. Abundance of wild flowers and wild strawberries. I halted here one day.

Synge (4500) :—8 miles. For about a third of the way after leaving Phagoo, there is a steep descent over a bad road, loose stones and broken ground. The appearance of the country here is barren and uninteresting, with a few scattered trees and wild raspberry-bushes in fruit. After reaching this distance the road becomes more level, and is greatly improved, passing through and along fields all the way. The heat excessive, owing to this valley being surrounded by rather high hills. Synge is a village, with large fields attached to it ; and the river Girri, in which there is most excellent fly-fishing, runs about a mile below it.

Dea, Dia, or Dhar (5500) :—7 miles. From Synge there is a rather steep descent by a foot-path of a mile to the Girri,

* The numbers following the names of the stations show *roughly* the elevation above the sea in English feet.

which is fordable. After crossing the river there commences a series of fatiguing ascents and descents through well-wooded country. The last fourth part of the march is all uphill. The road is tolerable, but the heat intense in some places, particularly in the valley, where there are fine streams for fishing.

Putturnulla (10,200):—6 miles. Several ascents and descents, through dense and grand forest-trees—yews, deodars, oaks, and so forth; also extensive flat grassy ground on mountain-tops. Abundance of strawberries and wild flowers. Every description of truly grand mountain-scenery. In some places the masses of rock are gigantic, forming entire precipitous hillsides with fir- and cedar-trees on them. In such places the Moonal [*Lophophorus impeyanus*], Goorul [*Haploceros gaural*] and Musk-deer abound. The road during the whole march was good. It rained a great deal, and the cold in my small wet tent at this high elevation was great.

Chepal (6000):—10 miles, through some very grand and dense forests. For about a third of the way the road is tolerably good; then comes a very steep descent over loose, stony, broken ground like a dry watercourse. This continues for very nearly halfway, when the road improves. The road to the high and grand Chore Mountain, about twenty-four miles distant, strikes off. Chepal is a small village. Flies in swarms.

Peonthree (5500):—11 miles. The road is tolerable, through a finely-wooded country, with some great ascents and descents. The river Shalla is forded during the march; and for two or three miles the road runs along its bank. The heat in this valley intense, as also at Peonthree, owing to its lying in a sort of basin.

Tikri (6000):—8 miles. A very fatiguing march; the road very indifferent, with some tremendous ascents, particularly for the last two miles up to Tikri, which is a good-sized village on the top and spur of a hill. The country is more or less barren, and uninteresting. Intensely warm, and swarms of flies.

Mundhole (4500):—5 miles. The road pretty fair, through a well-wooded country. About halfway there is a most fatiguing, steep and long ascent; then a long descent. Mundhole is a village situated in the midst of a great deal of cultivated ground.

Kandoe (6500):—9 miles. A most steep and fatiguing descent to the Tonse, a very impetuous and formidable river, about 150 feet broad, crossed by a most dangerous and very frail “jhulla,” or rope suspension-bridge, swung about sixty feet above the rapid torrent. The breadth of the “jhulla” is not more than twelve or fourteen inches. This platform is composed of thin pieces of planks, fastened on two thick ropes, very much in the style of a child’s harmonicum, and two thick ropes about two feet and a half above this for each hand of the passenger to lay hold of. The mere motion of a person crossing causes the “jhulla” to sway to the right and left. Altogether it is, without exception, the most dangerous bridge I have ever seen. Horses and cattle are obliged to swim over, and one of my horses was drowned within a few feet of the shore in the attempt. The other I sent back to Simla rather than run the risk of its being drowned also. From the Tonse the road is bad and steep, very fatiguing and intensely hot. Kandoe is on the top of a rocky hill, overhanging the river. Several small patches of cultivation are scattered about.

Bundraulie (7000):—11 miles. The Tonse runs from 1000 to 3000 feet below the road for the first three or four miles of the way. At about five miles the river Dharagad is crossed; and thence it is a steep ascent the whole of the way. The country is indifferently wooded, with firs on the heights, and rice-fields in the valleys. Bundraulie is a small village with a good deal of cultivation about it, and an abundance of apricot-trees full of delicious ripe fruit. The inhabitants extract a good deal of oil from the nut, and give the fruit to their cattle to eat.

Deobund (10,300):—11 miles. There are some terrible ascents and descents during this march; in fact, one half is down, and the other up, a steep hill with a difficult road as bad as it can well be. The country is well wooded. I halted here one day, and it rained nearly the whole time I was here. The Bungalow is in the midst of a dense forest of yew, fir, cedar, holly, and oak. Water good and near at hand. Strawberries and wild flowers in abundance. The forest is full of Moonal, pigs and other game. Bears and leopards are frequently fallen in with.

Pakree (5500):—11 miles. The first five miles are down a terrible descent, over a steep and bad foothpath, full of loose stones and broken ground, but through a well-wooded country—in some places a perfect forest. Here I saw several *Entellus*-Monkeys. After this the road improves into a very fair one and rather level, passing through the new military cantonment of Chakarata, the site of which is on the top of hills, rather wanting in trees, but the ground very level and covered with abundance of grass: water seems to be scarce at present, though it can be brought from a great distance. At Pakree there are two bungalows: near one of them I found a good many splendid mushrooms and truffles on the grassy flats. The water is good and at no great distance.

Thaena (5000):—11 miles. For the first few miles the road is fair, through a well-wooded country; then it becomes wretchedly bad, in some places almost impassable, with fatiguing ascents and descents—down watercourses occasionally, as the roads have been washed away. There were numbers of leeches, causing the greatest annoyance and pain to our feet.

Mudarsoo (4500):—8 miles. A dreadful road, the whole way through a dense jungle; the first half is a descent to the river Jumna, which is crossed by an old English iron suspension-bridge. The river here is seventy feet broad, and the stream rushes with great force. From this bridge there is a steep ascent the whole way to Mudarsoo. It rained the whole time I was there.

Mussoorie (6000):—16 miles. The first two-thirds of the road very bad, through a well-wooded country with steep ascents and descents. About halfway, at a place called Doadley, the Loquaree road is met, and thence the way improves greatly, till within four miles of Mussoorie it becomes a fine, broad, level road. Mussoorie is a large sanatorium, with a convalescent military hospital attached. The European houses are very good, but not equal to those at Simla, which is in reality now, for at least six months in the year, the seat of the Indian Government.

The whole country between Simla and Mussoorie is fairly cultivated, with numerous villages off the road in every direc-

tion, from the bottom of the valleys to the highest mountain-tops. In the valleys, owing to the abundance of water, there are numerous rice-fields; but higher up, wheat and barley are sown. From Simla to the Tonse the cattle are all of the pigmy black hill-breed; but on the Mussoorie side of this river they are of the large white-and-red breed found in the Dhoon and hill-terais. Large flocks of goats and sheep are frequently met with grazing on the slopes of the hills. The latter are kept more for their wool than for eating. On the flat grassy patches excellent mushrooms and splendid round truffles, called "marewah," the size of a Goose's egg, are found and eaten in great quantities. On all the mountain-heights delicious wild strawberries grow. These, with the roots of ferns, form chief part of the food of the Moonal [*Lophophorus impeyanus*].

I shall now commence my observations on the avifauna of the country passed through, as far as it was possible to make any, considering the few days occupied in marching through it, and the constant rainy weather experienced.

1. *GYPÆTUS BARBATUS* (L.) [7].* Not common; seen singly or in pairs at all elevations.

2. *OTOGYPS CALVUS* (Scop.) [2]. I saw only three, at elevations of from 5000 to 7000 feet.

3. *OTOGYPS FULVUS* (Gm.) [3]. A solitary one was seen flying over Chepal; and at Phagoo I saw several.

4. *NEOPHRON GINGINIANUS* (Lath.) [6]. Not common. I did not see more than a dozen altogether at all heights.

5. *BUTEO VULGARIS* (Bechst.) [44]. I saw a pair evidently breeding near Pakree.

* [As the nomenclature employed by our contributor differs in many cases from that of Dr. Jerdon, we have thought it would be convenient to our readers to add, in square brackets, the number prefixed to each species in the 'Birds of India.' In two cases, however, (Nos. 76 and 96) it has not been possible to do this; for we have been unable to identify the species under the names used by Col. Tytler with any published descriptions; and we trust he will kindly refer us to the passages in which they are to be found.—ED.]

6. *AQUILA BIFASCIATA*, J. E. Gray [27]. I saw one at Phagoo, and another at Synge.

7. *AQUILA MALAIENSIS* (Reinw.) [32]. I saw two at Phagoo.

8. *FALCO TINNUNCULUS*, Linn. [17]. Rather common at all heights.

9. *MILVUS GOVINDA*, Sykes [56]. I saw two or three near villages, at all heights.

10. *ASTUR PALUMBARIUS* (L.) [21]. A pair kept flying about Kandoë.

11. *ACCIPITER VIRGATUS* (Temmin.) [25]. I saw one in the valley of the Shalla river.

12. *CARINE BRODIEI* (Burton) [80]. I shot one at Mahassoo, and heard their note constantly at heights of from 4000 to 6000 feet.

13. *CARINE CUCULOIDES* (Vig.) [79]. I heard them frequently in well-wooded forests, at all heights.

14. *BUBO* — (?). A magnificent horned Owl sat on a tree at Tikri. I could not get a shot at the bird, and was therefore unable to determine the species. It was 2 A.M. when I saw him, and heard his loud clear note of "Goo-goo, chemp."

15. *EPHIALTES PENNATUS* (Hodgs.) [74]. Rather rare. I identified only one, near the Dharagad river.

16. *CAPRIMULGUS MONTICOLUS*, Frankl. [114]. Not uncommon, at all heights.

17. *CYPSELUS AFFINIS*, J. E. Gray [100]. Occasionally seen in flocks, near villages.

18. *CYPSELUS LEUCONYX*, Blyth [101]. I saw several flying over the extensive flat grassy ground on the mountain-tops on the march from Dia to Putturnulla, in company with several of *Chatura caudacuta*, but I did not succeed in shooting any. This Swift is readily distinguished from *Cypselus affinis* by its more elegant appearance and graceful flight.

19. *CYPSELUS MELBA* (L.) [98]. I saw very few, at elevations of from 5000 to 7000 feet.

20. *CHÆTURA CAUDACUTA* (Lath.) [97]. I saw about a dozen flying over the grassy flats on the mountain-tops, on the march from India to Putturnulla, in company with *Cypselus leuconyx*. I shot a male and female; there is no visible external difference in the appearance of the sexes, which I determined only by dissection. The flight of this bird is rapid beyond conception; when wounded they utter a screeching sound like "churr'r, churr'r, churr'r," and when taken hold of they at once strike their sharp claws into the flesh of the hand.

21. *HIRUNDO DAURICA*, L. [85]. Common everywhere, and, at heights, generally in pairs.

22. *HIRUNDO FILIFERA*, Steph. [84]. Not uncommon in the valleys near streams, but at no great elevation.

23. *HALCYON SMYRNENSIS* (Lath.) [129]. I saw only one, in the valley of the Shalla river.

24. *ALCEDO BENGALENSIS*, Gmel. [134]. I saw only one, also in the valley of the Shalla river.

25. *CERYLE GUTTATA* (Vig.) [137]. I saw very few on the Tonse and Jumna river, and none at any elevation beyond the height of the rivers.

26. *UPUPA* —? I saw two at a distance—one at Kandoe and the other near Thaena, but could not determine the species.

27. *CERTHIA HIMALAYANA*, Vig. [243]. Not uncommon at elevations of from 5000 to 6000 feet. At Phagoo I saw a mother feeding her two young: they were on the branch of a fir-tree; and almost every second the mother flew either on the side of a mud bank covered with moss and ferns, or else to the stump of a tree and returned to feed her impatient young with some minute insect.

28. *SITTA HIMALAYENSIS*, Jard. & Selby [248]. Not uncommon at elevations of from 5000 to 7000 feet; frequently in company with Titmice and other small birds. On arriving at Mussoorie I observed a mother feeding three well-fledged young on the insects found about the bark of an Oak-tree.

29. *SITTA LEUCOPSIS*, Gould [249]. I saw only one, at

Phagoo, gathering what appeared to be lichens on a high fir-tree, evidently for the purpose of building with.

30. *DRYMŒCA CRINIGERA* (Hodgs.) [547]. Common at all heights, on grassy slopes ; generally solitary ; but I have frequently seen two chasing each other.

31. *REGULUS XANTHOSCHISTUS* (Hodgs.) [572]. Not uncommon at heights of from 5000 to 7000 feet, usually in company with other small birds.

32. *REGULUS ALBOSUPERCILIARIS* (Blyth) [573]. Not uncommon at heights of from 5000 to 7000 feet, in company with other small birds.

33. *SAXICOLA CAPRATA* (L.) [481]. Common at all low elevations.

34. *SAXICOLA INDICA* (Blyth) [483]. Common up to 5000 feet.

35. *SAXICOLA FERREA* (Hodgs.) [486]. Common from 5000 to 7000 feet.

36. *RUTICILLA CYANA* (Hodgs.) [507]. I shot the only one I saw at Phagoo ; it was a male.

37. *PARUS ERYTHROCEPHALUS*, Vig. [634]. Common at all heights, in company with other Titmice and small birds ; generally in flocks of ten and twenty.

38. *PARUS MELANOLOPHUS*, Vig. [638]. Common at heights from 4000 to 7000 feet, in flocks of from ten to twenty, in company with other Titmice and small birds. I constantly saw mothers feeding their fledged young.

39. *PARUS MONTICOLUS*, Vig. [644]. Common at all heights, either in company with other small birds or solitary.

40. *PARUS XANTHOGENYS*, Vig. [647]. I saw very few, and these always at great elevations, such as Putturnulla and Deobund.

41. *PAROIDES FLAMMICEPS* (Burton) [633]. I saw several at Phagoo, but nowhere else.

42. *ZOSTEROPS PALPEBROSUS* (Temm.) [631]. Not uncommon at low elevations and in the valleys.

43. *MOTACILLA BOARULA* (Temm.) [592]. Not uncommon in the valleys and at low elevations.

44. *HENICURUS MACULATUS*, Vig. [584]. Not uncommon at all elevations, about rocks in streams.

45. *ANTHUS MACULATUS*, Hodgs. [596]. Frequently met with on grassy slopes, or barren land, in small flocks of from four to ten.

46. *ANTHUS SORDIDUS*, Rüpp. [604]. Rather common everywhere.

47. *MYIOPHONEUS TEMMINCKI*, Vig. [343]. Very common at all heights.

48. *TURDUS PANDOO*, Sykes [351]. Only saw one near Chepal.

49. *TURDUS ERYTHROGASTER* (Vig.) [352]. Rather common, at all elevations. I obtained several just-fledged young; the young males are easily distinguished from the young females by the dark blue on the tail- and wing-feathers.

50. *TURDUS CINCLORHYNCHUS* (Vig.) [353]. Not uncommon at all elevations.

51. *TURDUS UNICOLOR*, Tickell [356]. I saw only a few, at from 4000 to 6000 feet.

52. *TURDUS BOULBOUL* (Lath.) [361]. I shot the only one I saw, a female, near Dia.

53. *TURDUS ALBOCINCTUS*, Royle [362]. Not uncommon at elevations of from 6000 to 9000 feet. I saw several at Deobund in full song.

54. *TURDUS CASTANEUS* (Gould) [363]. I saw only one, at Deobund; there is no doubt but this is the young of *T. albocinctus*, though considered different by many. I have a complete series of them.

55. *TURDUS ATROGULARIS*, Temm. [365]. I saw several at all elevations.

56. *TURDUS MOLLISSIMUS*, Blyth [370]. I saw several at

Mundhole near the dāk-bungalow. I shot a female and a young male just fledged.

57. *GARRULAX ALBOGULARIS* (Gould) [411]. Common from 5000 to 9000 feet.

58. *GARRULAX VARIEGATUS* (Vig.) [418]. I only saw a flock at Deobund.

59. *GARRULAX LINEATUS* (Vig.) [425]. Common at all heights.

60. *TURNAGRA STRIATA* (Vig.) [382]. I saw three at Phagoo, and shot one.

61. *POMATORHINUS ERYTHROGENYS*, Gould [405]. Common at all heights.

62. *ORIOLOUS KUNDUO*, Sykes [470]. Common in the valleys, and up to 4500 feet.

63. *PYCNONOTUS LEUCOGENYS* (J. E. Gray) [458]. Common in small flocks, from the bottom of the valleys up to 6000 feet.

64. *PYCNONOTUS BENGALENSIS*, Blyth [461]. Common in the valleys.

65. *PYCNONOTUS HÆMORRHOUS* (Gm.) [462]. I only saw three or four in the valley of the Shalla river.

66. *HYPSSIPETES CAPISTRATA* (Vig.) [429]. Common in small flocks, from 4000 to 7000 feet.

67. *HYPSSIPETES PSAROIDES*, Vig. [444]. Common at all heights, in flocks.

68. *TCHITREA PARADISI* (L.) [288]. Common in the valleys and up to 4000 feet.

69. *RHIFIDURA FUSCOVENTRIS*, Frankl. [291]. I only saw one in the valley of the Jumna river.

70. *MUSCICAPA SUPERCILIARIS*, Jerd. [310]. Common at all elevations above 4000 feet.

71. *HEMICHELIDON FULIGINOSA*, Hodgs. [296]. Common at all heights up to 7000 feet.

72. *NILTAVA STROPHIATA* (Hodgs.) [319]. I saw only one, a male, in the forests after leaving Putturnulla, and shot it.

73. *PTERUTHIUS ERYTHROPTERUS* (Vig.) [609]. Not uncommon at from 5000 to 7000 feet.

74. *PERICROCOTUS BREVIROSTRIS* (Vig.) [273]. Common at all heights, in flocks.

75. *PERICROCOTUS ROSEUS* (Vieill.) [275]. I only saw one, a young male, and shot it, in the valley of the Jumna river.

76. *DICRURUS HIMALAYANUS*. Common up to all heights.

77. *ENNEOCTONUS ERYTHRONOTUS* (Vig.) [257]. Common in the valleys, singly.

78. *ENNEOCTONUS HARDWICKII* (Vig.) [260]. Common in the valleys, singly.

79. *GARRULUS ORNATUS*, J. E. Gray [669]. Common from 6000 to 9000 feet, in flocks.

80. *GARRULUS GULARIS*, J. E. Gray [670]. Common at all heights, in flocks.

81. *CISSA OCCIPITALIS* (Blyth) [671]. Common at all heights, in small flocks.

82. *CISSA FLAVIROSTRIS*, Blyth [672]. I only saw one, near Mahassoo, and shot it; this bird was in company with a great many of *C. occipitalis*.

83. *DENDROCITTA HIMALAYENSIS*, Blyth* [676]. Common in the valleys and up to 5000 feet.

84. *NUCIFRAGA HEMISPILA*, Vig. [666]. Common from 6000 to 9000 feet. I constantly observed parents feeding their just-fledged young, and have obtained a most interesting series of them.

85. *CORVUS INTERMEDIUS*, A. L. Adams [661]. Common at all heights, but more so in the neighbourhood of villages and houses.

86. *PSAROGLOSSA SPILOPTERA* (Vig.) [691]. I saw a few in the valleys.

* [Ibis, 1865, p. 45.—ED.]

87. *ACRIDOTHERES TRISTIS* (L.) [684]. Common in the valleys and up to 5000 feet.

88. *ACRIDOTHERES GRISEUS*, Blyth [686]. Common in the valleys and up to 5000 feet.

89. *ACRIDOTHERES PAGODARUM* (Gm.) [687]. I only saw a few occasionally in the valleys.

90. *COCCOTHTRAUSTES ICTERIOIDES*, Vig. [725]. Common at heights from 7000 to 9000 feet.

91. *FRINGILLA BURTONI* (Gould) [748]. I shot several at Phagoo, but saw them nowhere else.

92. *FRINGILLA SPINOIDES* (Vig.) [750]. Common at all heights above 4500 feet.

93. *PASSER INDICUS*, Jard. & Selby [706]. Common in the valleys and up to 5000 feet.

94. *PASSER CINNAMOMEUS* (Gould) [708]. Common from 4000 to 7000 feet.

95. *EMBERIZA FUCATA*, Pall. [719]. I saw some near Pakree, and shot a male.

96. *EMBERIZA HIMALAYENSIS*. Common at all heights.

97. *EUSPIZA LATHAMI* (J. E. Gray) [724]. Not uncommon at all heights.

98. *PALÆORNIS ALEXANDRI* (L.) [147]. I only saw a flock once. It was in the valley of the Dharagad river, and was composed of old and young just-fledged birds.

99. *PALÆORNIS SCHISTICEPS*, Hodgs. [150]. Common at all heights; I saw a great many just-fledged young birds.

100. *MEGALÆMA VIRENS* (Bodd.) [191]. Not uncommon, from 4000 to 6000 feet.

101. *MEGALÆMA ASIATICA* (Lath.) [195]. Common in the valley of the Jumna river, the only place where I saw or heard them.

102. *DRYOBATES HIMALAYANUS* (Jard. & Selby) [154]. Common at heights of from 5000 to 7000 feet.

103. *DRYOBATES BRUNNEIFRONS* (Vig.) [159]. Common at heights of from 5000 to 7000 feet.

104. *GEVINUS SQUAMATUS* (Vig.) [170]. Common at heights of from 5000 to 9000 feet.

105. *GEVINUS OCCIPITALIS* (Vig.) [172]. I only saw one, at Phagoo.

106. *COCCYSTES MELANOLEUCUS* (Gm.) [212]. I saw several after leaving Thaena, in the valley of the Jumna river.

107. *CUCULUS CANORUS*, L. [199]. Common at all heights, its note heard at all hours of the day, and occasionally at night—"Cuckoo, cuckoo."

108. *CUCULUS HIMALAYANUS* (Vig.) [200]. Common from 5000 to 9000 feet, their peculiar call of "Goog, goog, goog" constantly heard in forests.

109. *CUCULUS POLIOCEPHALUS*, Lath. [201]. I saw and heard a few from 4000 to 6000 feet.

110. *CUCULUS STRIATUS*, Drapiez [204]. I saw and heard several from 4000 to 6000 feet. The call of this bird is very pretty, "Wiko, wiko," frequently repeated.

111. *CUCULUS NIGER*, Blyth [208]. Constantly seen and heard at all heights up to 7000 feet.

112. *TRERON CANTILLANS* (Blyth) [778]. Common at all heights. The call of this green Pigeon (the "Kakla" of the hills) is constantly heard in the woods, and it is a sweet, flute-toned lengthened whistle.

113. *COLUMBA HODGSONI*, Vig. [783]. I saw a few in the dense forests about Putturnulla, but nowhere else.

114. *COLUMBA INTERMEDIA*, Strickl. [788]. Occasionally seen in flocks near the villages, but at no great elevation.

115. *COLUMBA CASIOTIS* (Bp.) [784]. I only saw one, at Deobund.

116. *TURTUR MEENA* (Sykes) [793]. Common at all heights from 4000 to 9000 feet.

117. *TURTUR CAMBAYENSIS* (Gm.) [794]. Occasionally met with in the valleys.

118. *TURTUR SURATENSIS* (Gm.) [795]. Occasionally met with in the valleys and up to 5000 feet.

119. *TURTUR RISORIUS* (L.) [796]. Common up to 6000 feet.

120. *PHASIANUS WALLICHI* (Hardw.) [809]. I only saw a pair, near Putturnulla.

121. *PUCRASIA MACROLOPHA* (Less.) [808]. I saw and shot a male, at Phagoo.

122. *GALLOPHASIS ALBOCRISTATUS* (Vig.) [810]. I saw several at all elevations.

123. *LOPHOPHORUS IMPEYANUS* (Lath.) [804]. I saw them only at Putturnulla and Deobund.

124. *FRANCOLINUS VULGARIS*, Steph. [818]. Common in all the valleys and up to 5000 feet.

125. *CACCABIS CHUKAR* (J. E. Gray) [820]. Common from 4000 to 6000 feet, on grassy slopes and barren land.

126. *CHÆTUSIA GOENSIS* (Gm.) [855]. Common in all the valleys, about rice-fields.

This completes the list of the birds I fell in with during the trip; and although very meagre, from unavoidable circumstances, still it is calculated to convey a pretty fair idea of the avifauna of this portion of the Himalayas during the month of June. The species are classified according to Mr. G. R. Gray's 'Catalogue of the Genera and Subgenera of Birds contained in the British Museum,' printed in 1855,—all groups of subgeneric value having been referred to the genera as therein given.

XVII.—On the Ornithology of Palestine. Part VII.

By the Rev. H. B. TRISTRAM, M.A., F.L.S., C.M.Z.S.

(Plates VI. & VII.)

[Continued from 'The Ibis' for 1867, p. 371.]

FEW of the Finch-tribe have a wider lateral range than the Rock-Sparrow, *Petronia stulta* (Gm.), extending, as it does, from Madeira to Affghanistan. It is stated by Brehm to be a permanent resident in warmer climates; this, however, is not the case in Palestine, where it is never found in winter. It reappears in the early spring (the first specimen we obtained being on March 28), and immediately begins to select its nest-holes, hatching its young about the first week in May. It is very widely distributed, but only in the open rocky country. I never observed it either on the coast-plains, or in the Jordan valley, while along the central ridge of western Palestine it was very common, generally in small parties of six or seven. It is an unobtrusive and unattractive bird, wanting the liveliness of the House-Sparrow, and eluding observation by quietly hopping behind the stones and rocks, among which it loves to dwell. Its gracefully mottled plumage is admirably adapted for concealment, the very pale brown and dingy white harmonizing perfectly with the chalky rocks, while it seldom utters its chirp unless when suddenly alarmed. We often watched a party of these birds quietly hopping in loose order among the barren stony ridges, picking up hard seeds and beetles in silence, and carefully avoiding any piece of turf or vegetation which might render them conspicuous. The chirp is very like that of the House-Sparrow (*Passer domesticus*), but louder and more plaintive. The Rock-Sparrow, so far as my own observation goes, always breeds down the sides of old wells, in company with the Little Owl (*Athene persica*). There were always two or three nests in the same well; and in the old dry wells near Bethany, and at St. Helena's Well, on the road to Jericho, we took forty-five eggs in two days. All the nests we subsequently found were hatched. The complement of eggs was five or six. They are very like the dark varieties of those of the

House-Sparrow, but larger, more closely speckled, some of them a dark brown, others of an umber-colour. All have a very fine polish, such as I have not noticed on the egg of any other species of the tribe. We found families of young birds fully fledged in the Lebanon and Hermon districts in June. The first plumage is of a russet hue, and without the characteristic yellow spot on the breast, but possesses the white bar at the extremity of the tail.

One day when we were encamped above Kulat-esh-Shukif, I was returning from a long tramp on the flat plain of Upper Galilee, without a solitary Partridge for supper in my bag, or anything more choice for the scalpel than a few Rock-Sparrows, Short-toed Larks, and Tawny Pipits, when I espied what looked like a hen Sparrow, dusting itself in the mule-path in front of me, uttering meanwhile a most Sparrow-like chirp. I was near our tent, and, by way of discharging my gun, I fired at it. Seeing the white bar on its tail as it fell, I took it for a young *Petronia stulta*, but soon discovered my mistake. We afterwards procured several others, but only on the bare plateau north of Hermon, and in Cœle Syria. One morning in riding across the arid plain of the Sahra, not far west of Damascus, we came on a neat compact nest in a very low bush, not two feet from the ground, containing four white eggs with a few black spots, exactly like a diminutive Golden Oriole's (*Oriolus galbula*). Completely puzzled as to the ownership of this pretty little domestic establishment, we thought it worth while to dismount and conceal ourselves in the neighbourhood till the proprietor should return. Soon the hen bird, cautiously hopping among the scrub, resumed her place on the nest. After watching her for a little while, we put her off, and secured her, as well as the sitting of four hard-set eggs. A few days afterwards I took another similar nest of five eggs in a bush on the bare hillside, near Zebdany. This style of egg, so strangely aberrant from the character of the rest of the family, is analogous to the exceptional egg of the North-American *Melospiza lincolni*, which lays a pure white egg, while all its congeners have eggs in the familiar Sparrow-style. But not only does the discovery of its nidification mark the distinct character of this desert bird ;

its general form, and everything except its coloration, seems to me to separate it very decidedly from the genus *Petronia*. It seems to have been first described as such by Bonaparte (Consp. Av. i. p. 513), from a specimen named by Hemprich, and since that time to have been only noticed by Cabanis (Mus. Hein. i. p. 157). Its bill is very small, and, like that of *Euspiza*, with an incipient notch; while its form is slender, and its general colour, above and below, a uniform very light brown, unrelieved except by a half-obliterated white spot at the extremity of all the rectrices. I conceive that it is rather a desert-form of *Euspiza* than anything else. Its specific name is inappropriate, and marks no peculiarity. The specimen figured (Plate VI.) is a female; but the sexes are similar in plumage. I have dilated at some length on this bird, as its habits and nidification were quite unknown, and it appears to be a very marked and distinct desert-form.

Of other Finches, the Greenfinch, *Chlorospiza chloris* (L.) is a very common winter-visitant on the coasts, and abounds especially on Mount Carmel, and on any wooded hills, but is rare in the interior, and disappears in spring. Its place is then taken by the Syrian Greenfinch, *Chlorospiza chlorotica* (Licht.), which is rather an early arrival, abundant from the end of March in all the wooded districts, and especially among the olive-groves and gardens, where its habits and nidification are exactly those of our Greenfinch. It may at once be distinguished by its much smaller size—the whole length being one inch (and the wing half an inch) shorter than in the European bird,—and by the colours, which are much brighter—the head, breast, abdomen, and vent being of a pure and brilliant yellow. It is not found very high up on the mountains, nor in the Jordan Valley. In its variation from our species, it presents an interesting analogy to the *Chlorospiza sinica* (L.) of continental China, which varies similarly both in size and coloration from the insular *Chlorospiza kawarabiba* (Temm. and Schl.) of Japan.

The Goldfinch, *Carduelis elegans*, Steph., is one of the most abundant of the Syrian avifauna, being found in every part of the country at all seasons of the year. The great variety of composite plants, some or other of which are always in seed,

afford an unlimited supply of its favourite food. It breeds in equally large numbers by the Dead Sea and on the slopes of Hermon and Lebanon. Not so the pretty little Serin, *Serinus hortulanus*, Koch, which we found only in the winter season, in the little glens and wooded districts near the sea, and never inland. Near Beyrout it is very common, but it leaves for the north in March. *Serinus pusillus* (Pall.), I know only by a single specimen procured on the Lebanon near Beyrout; but my new species, *Serinus aurifrons* (P. Z. S. 1864, p. 447*), is rather plentiful in the higher regions both of Lebanon and Hermon, not descending, however, lower than 4000 feet above the sea, and a permanent resident. I believe that the *Serinus syriacus* of Bonaparte (Consp. Av. i. p. 523) may have been an immature specimen of this bird; but the description is vague, and in some respects incorrect. It bears no resemblance to *Serinus hortulanus*, except in the relative distribution of its coloration, and cannot possibly be mistaken for it. The bright golden-yellow forehead, light-coloured back, and uniform yellow of the under surface without any striation, as well as its greater size, mark it at once as distinct. The tail also is longer in proportion, 2.25 inches instead of 1.875; and the rectrices have all their outer webs yellow, and the inner broadly bordered with white.

Our first acquaintance with this pretty little bird was in the pear-orchards above Rashiey, on the north side of Hermon, where we were attracted by its clear and varied notes, which were new to us, long before we could detect the musician ensconced in the foliage. The same afternoon we obtained four more specimens; and Mr. Bartlett succeeded in cleverly entrapping a female on her nest. There is little difference between the sexes in plumage; the nest is by no means so neat as that of the Goldfinch, and shallower, rather like that of the Common Linnet; and the eggs are marked like those of the

* *S. corpore supra flavido, fusco striato; fronte, pileo, uropygio, scapularibus aureo-flavis, fronte præcipue aurea; corpore toto subtus flavescente, nec striato; collari flavissimo; remigibus nigris, flavo externe limbatis; scapularibus flavidis; rectricibus omnibus nigris, albido externe limbatis et dimidiatim interne albidis. Long. tota poll. 5.15, alæ 3, caudæ 2.6.*

Goldfinch, but slightly larger. We afterwards met with this Serin breeding in June at the Cedars. The birds of the year have a rich russet hue, instead of yellow. The plate (Plate VII.) shows an adult male and a young bird.

In the same narrow limits occurs also *Carpodacus phoenicopterus*, Bp. It is not only local, but very scarce, yet unquestionably sedentary, concealing itself after the manner of our Bullfinch. We never could detect its nest, and very rarely caught a glimpse of it. It does not appear to descend as low as the villages of Lebanon, excepting in winter. Its desert-ally *Carpodacus githagineus* (Licht.) is not uncommon in the deserts near Beersheba; and in the neighbourhood of the Dead Sea I am certain I several times saw *Carpodacus sinaiticus* (Licht.), though I did not succeed in procuring it; nor have I any information to give respecting the nidification of either species, although I took the nest of the former in the Algerian Sahara.

Isolated and sedentary, a few pairs of the Snow-Finch, *Montifringilla nivalis* (L.), may always be seen on the snowy peaks of Hermon and Lebanon, never leaving the wintry heights,—a stranded relic, perhaps, of the glacial epoch, clinging to these southern mountain-tops, as it does, throughout the Old World, identical in species from the Pyrences to the volcanos of Japan.

Lastly the Common Linnet, *Linota cannabina* (L.), consorts with the Snow-Finch in great numbers, in summer, building its nest on the ground in tufts of alpine plants on Hermon, where we found its eggs in June, but descending in winter to the hills of central Palestine, where it roams through the open country in large flocks as in England.

Before concluding these notes on the Passerine birds of Palestine, I must state that, on going through my collection recently in company with the Editor of this Journal, we were satisfied that the Calandra-Lark of Mount Hermon and Lebanon must be distinguished from the common Calandra of the Plains and of Southern Europe. It is smaller and more slender, with a very decided rufous tint on the whole of its plumage; but especially the outer rectrices are without any white, while in the true *Melanocorypha calandra* (L.) the outer tail-feathers are

wholly white. But before describing the species as new, I am anxious to have an opportunity of examining Persian and Affghan specimens. De Filippi gives the Calandra as common in Persia (Viagg. Pers. p. 349).

Of the *Columbidæ*, *Columba palumbus* is spread in countless myriads over the wooded parts of the country in winter. Never, even in the lowlands of Scotland, have I seen such flights as cover the forests of Gilead at that season. The flights of Passenger-Pigeons in America alone can compare with them. The fellahin villagers of Gilead adopt a cruel yet simple device by which large numbers of Ring-Doves are taken in the season of migration. A bird is snared, its eyelids sewn up with thread, and then it is tied to a perch, and placed on a tree, where the spectacle of the captive vainly flapping its wings attracts a continuous crowd of its fellows, many of whom fall victims to the weapons of the fowlers, who are in ambush close by. It would be inexplicable how such multitudes of Pigeons can find a living in a comparatively uncultivated country, did we not know that all the *Columbidæ* feed greedily on the foliage of any species of leguminous plants, and that the clovers and *Astragali* are the characteristic flora of this country, coming into leaf in winter, and withering in April and May, by which time all the Ring-Doves have left. Indeed I doubt whether any remain so late as May, though possibly a few linger in Carmel and the higher grounds near the coast. Of the other Pigeons, *Columba ænas* occurs, but the suitable localities are few and far between. We never obtained it in this expedition, though I did so in 1858. *Columba livia*, on the contrary, is extremely abundant on the coast and highlands west of Jordan. My specimens can in no way be distinguished from those from the Orkney Islands. But inland and in the Jordan valley its place is taken by the allied species *Columba schimperi*, Bp. I am at a loss to discriminate this bird from the description of *Columba turricula*, Bp., from South Italy and Persia, "à croupion clair, gris-bleu, mais jamais blanc"*; while of *C. schimperi* he says "plus forte et plus blanchâtre que la commune *C. livia*." Now all my

* Coup d'œil sur l'ordre des Pigeons (Extrait des Comptes Rendus, xxxix. et xl.). Paris: 1855, p. 23.

Palestine specimens are decidedly smaller than *C. livia*; and so are all those of this species I have seen from Egypt, and they are not a few. Perhaps *C. turricola* and *C. schimperi* are after all identical. Bonaparte lays the greatest stress upon the character and wildness of the former as separating it from *C. livia*. There is, however, no doubt of the distinctness of the bird of the Jordan valley from our common Rock-Dove. Its ashy rump and the lighter hue of the lower parts separate it at a glance. The myriads of these birds are beyond computation, far exceeding even the clouds of domestic Pigeons. The wadys, with precipitous cliffs of soft limestone, honeycombed in all directions by caves and fissures, are admirably adapted for them. Several of these gorges are named from them "Wady Hamam," *i. e.* Ravine of Pigeons. One of the most remarkable is the Wady Hamam opening on the plain of Gennesaret, where are the famed robbers' caves, the scene of our principal bird-nesting exploits, inhabited by thousands of *C. schimperi*, whose swift flight and roosting-places far in the fissures secure them from the attacks of the many Hawks which share the caverns with them. They likewise swarm in the ravine of the Kelt, in the sides of Mount Quarantania, by Jericho, and, above all, in the cliffs which shut in the Arnon and the Zerka, in Moab, where their abundance is alluded to by the prophet Jeremiah. So secure are their nesting-places, that we never took more than half a dozen sittings of eggs, though we saw hundreds of nesting-holes; but their turns and twistings rendered even the device of a stick and a spoon unavailing.

No birds better illustrate the geographical position of Palestine than the Turtle-Doves. Here we find three species—one European, one Ethiopian, and one Indian (*Turtur auritus*, *T. senegalensis*, and *T. risorius*)—all meeting and living together. Of these, *T. auritus* is by far the most abundant, but only in spring and summer, returning about the end of March, and suddenly overspreading every part of the country, highland and lowland alike. *T. senegalensis*, on the contrary, is a permanent resident, not increasing its number by migration, confined chiefly to the neighbourhood of the Dead Sea and the lower Jordan, but residing throughout the year even in the court-

yards of houses in Jerusalem and in the Temple-area, where, from its tame and confiding habits, it appears to be semidomesticated. *T. risorius*, the Indian Collared Turtle, perhaps the handsomest as well as the largest of the group, is also a permanent resident round the Dead Sea, but only in small numbers in winter, when it is shy and wary. In spring its numbers are largely increased, and it spreads itself through the greater part of the country, up to Mount Tabor, and breeds everywhere in trees and bushes, generally living in small flocks of eight or twelve together. According to Dr. Jerdon this gregarious habit has also been noticed in India (B. Ind. ii. p. 482). *T. risorius* has lately been obtained at Constantinople, its extreme westernmost range, by Mr. E. C. Taylor (Ibis, 1864, p. 410) and others. As it has not yet been noticed in Africa*, it is a curious speculation whence its numbers in Syria are recruited in spring. The note of all these species is very distinct. That of *T. senegalensis* is a low monotonous "coo" quickly and softly repeated, while *T. risorius* has a clear anapæstic note "coo-coo cōō." There is no difference in the nidification of any of the three species.

The game-birds of Palestine are numerous both in species and individuals, though Hawks are many, and game-preservers none. On the Sand-Grouse I have nothing to add to our previous stock of knowledge. They were too wild in winter to give us any opportunity of studying their habits, as I had done in the Sahara; and in the spring we were far from their haunts. There are at least four species to be noticed, and all of them very numerous. They resort to the barren plains, everywhere irrespective of elevation, from the Arabah up to the high plateau above Damascus. The Palestine species are *Pterocles exustus*, *P. senegalensis*, *P. arenarius*, and *P. alchata*, to which I believe further research might add others, although no Scythian invasion appears to have reached Palestine. So numerous are the Sand-Grouse in spring between Damascus and

* [We take this opportunity of mentioning that we have been informed by Mr. Edward Newton that the insertion of the name of this species among those seen by him between Malta and Alexandria (Ibis, 1859, p. 462) was an error of transcription. The bird seen by him on that occasion was *T. auritus*.—ED.]

Palmyra, that a party of our friends lived for several days on their eggs, but were little enough of oologists not to preserve a single shell, much less a skin to decide the species !

The Pheasant (*Phasianus colchicus*) which once I had the pleasure of seeing wild and indigenous near Ephesus, does not appear to be known in Syria ; but the Francolin, *Francolinus vulgaris*, Steph., is still there to tempt our noble President to continue his researches yet further east. But if he wishes for a large bag, he needs to have his dogs, unless he descends to the unsportsmanlike device of one of our party, concealing himself in a bush, imitating its peculiar call, and "potting" the unwary runners from his ambush. The Francolin is very abundant on the plain of Gennesaret, where the coveys conceal themselves among the thickets of Jujubes (*Zizyphus*), especially near water. We also frequently heard and sometimes saw it on the plains of Acre and Huleh, and in the lower grounds of Esdraelon, near the Jordan. But it never voluntarily leaves its cover. Its flight is heavy, rather like that of a Grouse ; and it is perhaps the easiest of all game-birds to shoot on the wing. There were seldom more than three or four together ; but I have frequently found half a dozen parties within call of each other. The cock bird begins to call from the middle of a grass-field at the early dawn, and the cry is taken up and answered on all sides in an instant. It is a very peculiar note, never forgotten when once heard, something like "chuk, chuk, tee-tee-tor." The nest is very difficult to find, and I never succeeded in discovering it myself ; but some of our Arabs once brought in a sitting of eggs, all of which they succeeded in smashing as they carried them in their cloaks. The eggs are intermediate in size between those of the Common Pheasant and the Grey Partridge, and precisely of the same colour, but rather coarser in grain. They appear very rare in collections, and none of our Arabs knew them. The plumage of the cock shows beautifully on the wing, its black feathers with their white spots being very conspicuous. It is perhaps the very best eating of all game-birds, not excepting the Red Grouse ; and its introduction to the marshy lands of the south of England might, I feel certain, be advantageously attempted by

the Acclimatization Society; for it shows no disposition to wander far from its ordinary haunts.

Of other *Perdicinæ*, *Caccabis saxatilis* is the game-bird of the country. Notwithstanding that it is left in the position of the "unprotected female," reft of the care of gamekeepers, to the ruthless wooing of every species of Hawk and Falcon, the hillsides of Palestine can yet afford goodly sport; and he must be a very indifferent sportsman who cannot anywhere secure a plentiful dinner in the course of his morning ramble. I feel quite satisfied of the distinctness of the Syrian bird from that of Greece, at least as a race. Of the scores which passed through my hands I never met with one which had not the throat more or less rufous, like the Indian *Caccabis chukar*, while the black gorget below is very much wider than in the Greek or Indian birds. Now the narrowness of this black collar is given, and correctly, as one of the two distinctive marks which separate *Caccabis chukar* from *C. græca*. But here we have a bird, running rather larger than *C. chukar*, and even than *C. græca*, with the rufous throat of the former, and with the black gorget extending sometimes to more than an inch in diameter, while in the Greek bird it is only a quarter to half an inch, and in the Indian only a very narrow line of about a quarter of an inch. The crown of the head, too, is of a very light ash-colour, instead of deep brown as in the others. Besides, out of a vast series of eggs of the true *C. græca* collected by Mr. Simpson in Greece and the Dobrudscha, all are very nearly white or cream-colour, and only rarely with the faintest trace of freckles. Of upwards of five hundred eggs collected by us in Palestine, not one at all resembled them. All had the russet ground-colour of the egg of our Redleg (*Caccabis rufa*), and most of them were as profusely freckled, though the freckles are generally smaller and finer. The eggs run smaller than those of either our Redleg or the Barbary Partridge (*Caccabis petrosa*), which latter, though the smallest of the group, lays the largest egg; whilst the Greek, the largest of all, lays the smallest. I perceive no difference between the Syrian eggs and those of *C. chukar*, from India. Birds shot by me in Asia Minor and Crete agree with the Syrian instead of the Greek bird. I should propose,

therefore, if it be possible, to restrict the name *C. græca* to the continental Greek form, and to assign *Caccabis saxatilis* (Bechst.) to the Syrian. It is as truly a rock-haunter as the others. We never found it on the plains, and it lays its eggs under bushes on the hillsides. I have not been able to compare either the egg or skin of Swiss specimens.

Much more restricted in its range is the beautiful little *Ammoperdix heyi* (Temm.), a *Caccabis* in miniature, of which the only other species known is *A. bonhami* from India. This lovely little bird, smaller than the Grey Partridge, abounds in the rocks near the Dead Sea, but is never found more than a few miles from that lake, though common in Arabia Petræa. It runs in large coveys, and is flushed with difficulty, as the birds have a habit of separating and concealing themselves behind stones without rising; but when once started, it has a vigorous flight. It has a habit, singular for a Partridge, of laying its eggs in holes and fissures of the rocks. These are of a very delicate creamy-pink, wholly unspotted, and glossy, and when fresh are, I think, the most beautiful of all Partridges' eggs. In shape they are more elongated, and in colour richer than those of *A. bonhami*. I once found a nest in a deep hole in the side of a cliff containing twenty-seven eggs, sixteen of which were of the preceding year and addled, the others being quite fresh. It was amusing to watch these little birds, scarcely distinguishable in colour from the rocks among which they ran, scrambling up the cliffs, working their heads from side to side, as if to balance themselves. The savour of his flesh is not equal to the beauty of his plumage, for it is as dry as the rocks he inhabits; and, unlike the species of the genus *Caccabis*, there is a great difference between the livery of the sexes. In both, the legs are lemon-yellow, and the bill a rich bright orange; but the plumage of the female is sand-coloured, uniformly mottled, but lighter on the under surface; while the male is darker on the head, reddish sand-coloured on the back and breast, mottled on the rump and tail, with rich black and chestnut streaks (not transverse bars) on the flanks and belly, and he wants the spur on the tarsus. These differences seem quite enough to separate the genus *Ammoperdix* from *Caccabis*.

The Quail, *Coturnix communis*, is the only other Gallinaceous bird that came under our notice. A few pairs might be found here and there throughout the winter ; but in March they returned from the south by myriads in a single night, and remained in all the open plains, marshes, and cornfields.

[To be continued.]

XVIII.—*Corrections of, and additions to, the Catalogue of the Raptorial Birds of the Malay Archipelago**. By ALFRED R. WALLACE, F.Z.S. &c.

I AM indebted to Mr. J. H. Gurney for calling my attention to an important omission and error in the above-mentioned list. I have placed under *Spizaetus cirrhatus*, as a synonym, *Nisaetus alboniger*, Elyth, quite overlooking the plate in Part 15 of Mr. Gould's 'Birds of Asia,' from specimens in the Norwich Museum which show it to be a distinct species. I also describe and figure as new *Spizaetus nanus*, which may probably be the young of *S. alboniger*, although it presents several curious differences. Mr. Gurney kindly sent for the two specimens from Norwich to compare with my bird. The brown individual (figured by Mr. Gould on the same plate) is undoubtedly the same as mine ; but they both differ from *S. alboniger* in the smaller feet (the inner, middle, and hind toes and claws being especially shorter and slenderer), and in the larger amount of feathering of the middle toe. We then proceeded to the British Museum and found two specimens said to be from Borneo :—one closely agreeing with *S. alboniger* ; the other corresponding in the foot-characters with my *S. nanus*, but approximating somewhat in size and plumage to *S. alboniger*. This latter bird is the one named *S. borneonensis* in Mr. G. R. Gray's List of *Accipitres*, but not described. I cannot, therefore, decide whether the three smaller and brown-plumaged specimens (*S. nanus*) are identical with the two larger black-and-white birds, which are decidedly *S. alboniger* ; and Mr. Gurney agrees with me that the case is still a doubtful one.

The following corrections require to be made to my catalogue.

* *Suprà*, pp. 1-27.

P. 7. After ACCIPITER RHODOGASTER, add

ACCIPITER STEVENSONI, Gurney, Ibis, 1863, p. 447, pl. xi.

Hab. China, Singapore, Java.

I had overlooked this, from its being headed "Description of a new Hawk from China."

P. 13. SPIZAETUS CIRRIHATUS, omit "*Nisaetus alboniger*, Blyth" &c. from among the synonyms.

P. 14. After SPIZAETUS KIENERI, add

SPIZAETUS PHILIPPENSIS, Gurney, in Gould's 'Birds of Asia,' pt. 15.

Hab. Philippine Islands.

SPIZAETUS ALBONIGER (Blyth), Journ. As. Soc. Beng. 1845, vol. xiv. p. 173; Gould, 'Birds of Asia,' pt. 15, pl.

Hab. Malacca, Borneo.

P. 14. After SPIZAETUS NANUS, add:—On comparing this with specimens in the Norwich and British Museums, I think it may be the immature state of *S. alboniger*, although it differs so remarkably from that species.

I am informed that there are several species from the Philippine Islands in the Norwich Museum not included in my list, which only professes to give published species in addition to those in my own collection. It is much to be wished that some competent ornithologist would draw up a list of the birds of the Philippine Islands from an examination of the specimens in the principal European and American museums.

XIX.—Notices of Recent Ornithological Publications.

1. ENGLISH.

DURING the past year Mr. Gould has displayed more than his wonted activity. Besides the usual two parts of the 'Birds of Great Britain,' and the single part of the 'Birds of Asia,' he has brought out another portion of the Supplement to the 'Birds of Australia*.' The species depicted in these several publications are as follows:—

* The preceding part (the third) of this 'Supplement' was published in 1859 (Cf. Ibis, 1859, pp. 454, 455).

' Birds of Great Britain ' :—

PART XI. August 1st, 1867.

Hawk Owl.	Great Tit.
Little Owl.	Dunlin (winter plumage).
Tengmalm's Owl.	— (summer plumage).
Nightingale.	Sanderling.
Bee-eater.	Roseate Tern.
Bullfinch.	Red-crested Duck.
Rock Pipit.	Common Gull.
Vinous Pipit.	

PART XII. September 1st, 1867.

Hen Harrier.	Siskin.
Ash-coloured Harrier.	Spotted Redshank.
Raven.	Crested Tit.
Pine-Grosbeak.	Lapland Bunting.
Ring Ousel.	Surf-Scoter.
Pied Wagtail.	Velvet Scoter.
White Wagtail.	Bernicle Goose.
Richard's Pipit.	

' Birds of Asia ' :—

PART XIX. May 1st, 1867.

Phasianus scœmmerringi. Nagasaki.	Emberiza pusilla. Northern Asia.
— scintillans. Yokohama.	Montifringilla adamsi. Ladakh.
Nectarinia osea. Palestine.	Syrnhaptus paradoxus. Central Asia.
— zeylonica. India.	Excalfatoria chinensis. Malasia.
— insignis. Penang.	— minima. Macassar.
— gouldiæ. Himalaya.	Garrulax delesserti. Nilgherries.
— saturata. India.	— gularis. Assam.
Melanocorypha maxima. Affgha- nistan ?	Sterna melanogaster. India.

' Birds of Australia ' :—

Supplement. PART IV. December 1st, 1867.

Polytelis alexandræ. Central Aus- tralia.	Malurus leuconotus. Interior of S. Australia.
Geopsittacus occidentalis. Western S. Australia.	— callainus. Interior of S. Aus- tralia.
Cyclopsitta coxeni. Queensland.	— hypoleucus. Cape York.
Chlamydera guttata. N.W. Aus- tralia.	Lophophaps ferruginea. West Aus- tralia.

Lophophaps leucogaster (sp. n.). S. Australia.	Atrichia rufescens. Richmond River.
Pardalotus xanthopygius. S. Australia.	Gerygone personata. Cape York.
Ptilotis cassidix. (Patria ignota.)	Cacomantis castaneiventris. Queensland.
Sphenura broadbenti. Victoria.	Actiturus bartramius. Botany Bay!

It is almost unnecessary for us to make any remarks. This list of plates tells its own tale. Some of them, of course, please our eye more than do others; but there are few, if any, that fail to please it somehow.

Whatever opinion our readers may entertain of the principles of Mr. Darwin's well-known theory, we believe they will all be charmed with one at least of his last two volumes*. The amount of information the author sets forth on Pigeons and Poultry is very great, and his skill in marshalling the countless facts he cites is perfectly marvellous. He seems to possess, if not the philosopher's stone, yet a touchstone of wondrous virtue; and the way he applies it to detect the presence of a grain or two of gold in a heap of apparent rubbish must be witnessed to be appreciated. He extracts facts of the highest scientific importance from materials commonly neglected by naturalists, in a manner most pleasing to contemplate. To the readers of this Journal the minute descriptions of the various races and breeds of *Columba livia* and *Gallus bankiva* cannot fail to be deeply interesting; and the anatomical details he furnishes with respect to the varieties of these species are, so far as we know, presented to the public for the first time. As regards some of the other domesticated birds, Mr. Darwin, we think, is not so successful; and his statement (vol. i. p. 237) that the wild form of the Chinese Goose (*Anser cygnoides*) is "still unknown or extinct" is certainly incorrect. The wild stock of this bird was described and figured by Pallas (Zoogr. Ross.-As. ii. pp. 218-220, pl. lxiv.), Temminck, and Schlegel (Faun. Jap. *Aves*, pp. 125, 126, tab. lxxxi.), and again in great detail by Dr. L. von Schrenck (Reisen u. s. w. im Amur-Lande, i. pp. 457-462, taf. xv.), and, we should

* The Variation of Animals and Plants under Domestication. By CHARLES DARWIN, M.A., F.R.S., &c. London: 1868. 2 vols. 8vo.

have thought, was perfectly well known. Still, this, and a few other imperfections of less importance, does not hinder the work from being one of the greatest interest.

Mr. Tristram's book on the Natural History of the Bible* only requires a brief notice here, for we believe that his writings are fully and deservedly appreciated by our readers. It will be sufficient to remark that this compendious little volume, as might be expected from an author so thoroughly acquainted with his subject, contains a very complete account of the matters of which he treats, and is an excellent example of a scientific work written in a popular style. It is certainly the best book on Bible Natural History that has ever appeared, and it will probably long enjoy that preeminence. As regards Ornithology, which occupies nearly a fifth of the volume, there is little left to be desired. Most of the woodcuts with which it is illustrated have appeared before; but these are from the pencil of Mr. Wolf, and therefore not to be surpassed. The new ones are not so successful, being by a very inferior artist, as witness the figures of the Collared Turtle (p. 217), Hey's Partridge (p. 277), and the Senegal Sand-Grouse (p. 229). On the whole we can most conscientiously recommend the work, and we look forward with more interest than before to the Manual on the Fauna and Flora of Palestine which Mr. Tristram is preparing for publication by the Ray Society.

Mr. A. Leith Adams has wandered to some purpose in India, and has produced a very fairly written and readable book †, of a kind very much wanted in that country. We have had no end of volumes on Indian wild sports, written by men who know a great deal about shooting but who are no naturalists. This is

* The Natural History of the Bible: being a Review of the Physical Geography, Geology, and Meteorology of the Holy Land; with a description of every Animal and Plant mentioned in Holy Scripture. By H. B. TRISTRAM, M.A., F.L.S., &c. London: 1867. 12mo, pp. 516.

† Wanderings of a Naturalist in India, the Western Himalayas and Cashmere. By A. LEITH ADAMS, M.B., Surgeon, of H. M. 22nd Regiment. Edinburgh: 1867. 8vo, pp. 333.

perhaps the first work that has appeared from the pen of a man who combines both characters, and is able to give the scientific name of an animal he has happened to kill. The best of the author's ornithological observations, however, have before appeared in print, having been communicated by him to the Zoological 'Proceedings' for 1858 (pp. 466-512), since which time, as many of our readers know, he has been knocking about in various parts of the world, and has enrolled his name among those of our contributors (*Ibis*, 1864, pp. 1-36), where we should be glad to see it again; for a naturalist so observant, and with such opportunities as Mr. Adams has enjoyed, must have always plenty to say for himself.

Mrs. Hugh Blackburn has published a second and concluding part of her '*Birds drawn from Nature*,' which now forms an inviting and handsome volume*. The first part was noticed at some length in this Journal a few years ago (*Ibis*, 1862, pp. 290-294); the second is like unto it, and contains some very pretty and characteristic sketches. Among them we may especially mention for its excellence that of the young Hooded Crow, no. xxxiv. A very exciting scene is well represented in no. xxvii., the group of sea-birds, wherein the different idiosyncrasies of Tern, Gull, and Auk are happily and truthfully rendered. Other plates are not so successful; in a good many the plumage is made to look like fur or wool; but as the artist, in all cases, has "drawn from nature," the general result is tolerably satisfactory.

2. FRENCH.

The generosity of M. Alphonse Milne-Edwards has furnished us with ten more *livraisons* of his magnificent work† since we last noticed it (*Ibis*, 1867, pp. 242, 243). These contain twenty-seven sheets of letterpress and forty-three plates, the latter, without exception, most beautifully executed. The plan

* *Birds drawn from Nature*. By Mrs. HUGH BLACKBURN. Glasgow: 1868. Folio.

† *Recherches anatomiques et paléontologiques pour servir à l'histoire des Oiseaux Fossiles de la France*. Par ALPHONSE MILNE-EDWARDS. Livraisons 4-13. Paris: 1867. 4to.

of the book now reveals itself; but it would still be very premature to speak of it as a whole. After a chapter of general considerations, we have one containing the author's preliminary notions of the osteology of birds. This chapter is divided into sections, each treating of the bones of one portion of the skeleton—the leg, trunk, wing, and head respectively. Then begins the real business of the work with a chapter devoted to the osteological characters of the family of “*Palmipèdes lamellirostres*,” or, as we should say, *Anatidæ*. The arrangement of the subject in the sections just mentioned is here again followed, most conveniently for comparison of results; and this is succeeded by a description of the fossil species belonging to the family, first those of the tertiary epoch, and next those of the so-called “quaternary.” None of these last differ from those now inhabiting France, though there is reason to suppose that the more peculiarly northern forms were then more abundant than now; but of the tertiary species, besides those mentioned in our former notice, remains of three others, *Anas consobrina*, *A. natator*, and *A. robusta*, are figured and described. We have then a chapter treating of fossil birds probably allied to the *Anatidæ*; and here M. Milne-Edwards lodges the celebrated gigantic *Gastornis parisiensis*, about which so many opposite opinions have been held. Its exact position must remain in doubt until more relics of it are discovered. But our author concludes that it was incapable of flight, though probably a swimmer. M. Milne-Edwards next passes to the “*Palmipèdes totipalmes*,” in the treatment of which the same admirably clear arrangement is pursued. Here we have figured and described, as new species of the tertiary epoch, *Pelecanus gracilis*, *Graculus miocænus*, *G. littoralis*, *G. intermedius*, and *Sula arvernensis*, while in the midst of the account of *S. ronzonii* (Gervais) the letterpress of the work at present stops. Besides these species, figures are also given of remains of *Pelagornis miocænus* from the Armagnac, *Graculus carbo* from Grays, in Essex, and, from the Allier, *Colymboides minutus*, “oiseau fossile, voisin des Plongeurs,” *Larus desnoyersi*, *L. elegans*, *L. totanoides*, and *Hydrornis natator* (Aymard), descriptions of which we may shortly expect in the continuation of the work.

It gives us great pleasure thus to notice a publication in every way commendable, whether we regard the zeal and conscientiousness with which the author has worked, the novelty of the subject, or the profuseness with which it is illustrated.

The third volume of the 'Bulletin' of the 'Nouvelles Archives du Muséum' contains an illustrated paper by M. Jules Verreaux, in which two species of birds are described as new, and a third is figured for the first time. The first of these three species is *Chaetura grandidieri*, discovered on the east coast of Madagascar by M. Alfred Grandidier, of whose labours in elucidating the fauna of the "grande île Africaine" we have presently to speak at greater length. The second is made the type of a new genus under the name of *Ampelioides flavitorques*; but our friend Mr. Sclater informs us that he has examined the specimen (sent from the Rio Napo and now in the Paris Museum) on which this genus and species is founded, and finds it to be identical with *Ampelion cinctus* (Tschudi) already figured in the 'Proceedings of the Zoological Society' (1855, p. 152, pl. 104). The third species of which M. Verreaux treats is *Foudia eminentissima*, Bp. (Consp. Av. i. p. 446), a very beautiful bird from Zanzibar, of which the collection at Paris contains the unique example. We may remark that, considering the very small range of other species of this genus, we are very much inclined to doubt the truth of the supposition hazarded by Bonaparte (*loc. cit.*), and repeated by Dr. Hartlaub (Orn. Madag. p. 56), as to an immature or female specimen, obtained in Madagascar, and now also at Paris, belonging to this species.

In the 'Revue et Magasin de Zoologie' for last year M. Alléon pleads (pp. 1-7) for the admission into the European Fauna of *Accipiter badius* and *Columba risoria*. By the former is, of course, meant in reality *A. brevipes* (*cf.* Ibis, 1865, pp. 341, 342); and no one can doubt the propriety of including it as a bird of South-eastern Europe. Touching the occurrence of the latter at Constantinople, we may refer to the evidence of Mr. E. C. Taylor (Ibis, 1864, p. 410), as well as to the older testimony of Strickland (P. Z. S. 1836, p. 100) and Colonel

Drummond-Hay (Ann. and Mag. N. H. xiii. p. 13). M. Grandidier gives (pp. 85–88) a list of supposed new birds discovered by himself in Madagascar; but he was unfortunately premature in sending home the diagnoses of some of them, as a later note (pp. 254–256) from him testifies. However, *Nisus polleni*, *Ellisia lantzi*, *E. chloropetoides*, *Coua coquereli*, *C. cursor*, and *C. verreauxi* appear to be new. He subsequently publishes (pp. 318–321, 353–360, 385–392, 417–420) a series of papers (concluded in the volume for the present year) on the “Oiseaux observés à Madagascar, de 1865 à 1867,” a title which, we must take the liberty of remarking, does not seem to us to be literally accurate, inasmuch as certain species are included in the list (*Hypherpes corallirostris* for example) which do not appear to have been “observed” by the author, or, indeed, by any other naturalist within that period; and, at the same time, the list, as a list of the birds of Madagascar, is incomplete, several species being omitted the occurrence of which in the island is incontestable. Respecting the new species introduced by the author, we do not like to give any decided opinion; and we cannot help wishing that M. Grandidier had exercised a like forbearance as regards species described by other naturalists. He would thus have been spared the assertion (R. Z. 1868, p. 5) that *Anas melleri* (P. Z. S. 1864, pp. 487, 488, pl. xxxiv.) is probably only a variety of *A. boschas*, and that he does not believe it to have been “nouvelle pour la science.” He says he has only seen female specimens of it; but in truth the sexes scarcely differ in plumage. On the other hand, we believe M. Grandidier to be quite right in identifying *Hylophorba ruticilla* (P. Z. S. 1865, pp. 326, 327, pl. xiii.) with *Calicalicus madagascariensis* (Linn.). M. Marchand continues (pp. 33–37, 138, 139, 322–324) his Catalogue of the birds of the Eure-et-Loir, and M. Vian (pp. 129–138, 174–176, 199–208) his “Causeries Ornithologiques,” the latter treating of *Aquila navioides* and *A. navia*, *Falco peregrinoides* (sc. *F. barbarus*, Linn.), and *Emberiza passerina*. M. Jules Verreaux also contributes (pp. 169–174) a list of birds collected in Northern China by Mgr. Perny, of which two are new,—*Picus pernai* (pp. 271, 272, pl. xvi.) somewhat resembling *P. cathpharius*, but differing in its whitish rump, a black band extending down its

belly, and a red patch on the breast, and *Nectarinia dabrii* (pl. xv.) belonging to the long-tailed group which contains *N. nipalensis*, but differing from all others of it in the whitish tips to the outer rectrices. The collection contained examples of two other rare birds:—*Hypsipetes niveiceps*, Swinhoe (*Ibis*, 1864 p. 424), and *Thaumalea amherstiae*, a male, as all other specimens of this scarce species have been (*cf. Ibis*, 1867, p. 371). A few other articles of less importance, and a series of plates representing nestling birds by M. Marchand, make up the ornithological portion of our contemporary's contents; and it is certainly gratifying thus to find our science once more assuming its former position of importance in France.

3. DUTCH.

We have to mention the publication of two *livraisons* of the long-expected work* by Prof. Schlegel and M. Pollen, on the researches carried on in Madagascar by the gentleman last named, and his companion M. van Dam. When the work is completed we shall probably speak at greater length of it. The cream of these praiseworthy discoveries had previously been taken off by Prof. Schlegel, in papers contributed by him to the the 'Nederlandsch Tijdschrift voor de Dierkunde' (vol. iii. pp. 79–89) and to our own Zoological 'Proceedings' for 1866 (pp. 419–426); we were therefore in some measure prepared for what was to follow. But we find that the authors are in several instances inclined to a belief in the superiority of "second thoughts;" and on reconsideration certain species of which the validity was then denied are now (and as we humbly think with justice) recognized. One of them is the Madagascar Kestrel, described by Mr. Gurney long ago in this journal ('*Ibis*,' 1863, pp. 34–37, pl. ii.) as being distinct equally from the Mauritian *Tinnunculus punctatus* and the Seychelles *T. gracilis*, a matter on which it appears to us that no person who had ever seen the three forms could entertain a moment's doubt. A little more reflection, and perhaps the reexamination of specimens, will, we

* Recherches sur la Faune de Madagascar et de ses Dépendances, d'après les découvertes de MM. François P. L. Pollen et D. C. van Dam. Mammifères et Oiseaux par H. SCHLEGEL et FRANÇOIS P. L. POLLEN. Leyde: 1867. Royal 8vo. (Livraisons I., II.)

think, induce Prof. Schlegel to alter his opinion as to the species of *Zosterops* which inhabit the Mascarene Islands. Mauritius and Réunion possess each two species of this genus, the two found in the first being *Z. chloronotus*, Hartl. *, and *Z. mauritiana* (Gm.)—not *mauritanica* (!), by the way, as our authors have it,—and the two inhabiting Réunion being *Z. hasitata*, Hartl. and *Z. borbonica* (Bodd.) †. Now these four species form two beautiful pairs of representatives, *Z. chloronotus* and *Z. hasitata* on the one hand, and *Z. mauritiana* and *Z. borbonica* on the other ; but that each of these four is distinct there can be no question. Our authors, probably not having compared specimens of both pairs from both islands, allow the existence of three species only, imagining that *Z. chloronotus* and *Z. mauritiana* are synonyms, and that *Z. borbonica* inhabits Mauritius as well as Réunion. Another case in which they have decidedly erred is in ascribing the bird mentioned by Dr. Roch in this journal (*Ibis*, 1862, p. 267) under the name of *Falco radama* to *F. peregrinus*. We hope shortly to give a figure of this specimen ; and then, we doubt not, the truth of what we now allege will be fully admitted.

We must make one more remark before leaving this interesting work. What can be the object of printing the manuscript names applied by M. Pollen “*in litteris*” to species which had been previously described ? Of course that gentleman was quite right in sending home descriptions of his specimens as he collected them, and quite right in putting names to those descriptions. Some of them were published from time to time by Prof. Schlegel in the Dutch journal (now, alas ! extinct) to which we have already referred, and many of the names there applied stand ; but as for the others, they merely encumber the memories and mislead the imagination of ornithologists. Let us

* Whether this is the *Certhia chloronotus* of Vieillot (Ois. dor. p. 61, pl. 28), as Dr. Hartlaub supposes, we do not pretend to say. Prof. Schlegel asserts that it is not. If he be right, the species will probably require a new name.

† Prof. Schlegel identifies the “*Grimpereau de l'isle de Bourbon*” of Buffon (Pl. enl. No. 681, fig. 2), on which is based the *Certhia borbonica* of Boddart (Table Pl. enl. p. 42), with the *Motacilla borbonica* of Gmelin (S. N. i. p. 981), founded on “*le Figuier de l'Isle de Bourbon*” of Brisson (Orn. iii. p. 510).

conclude by saying that nearly all the plates, as, indeed, is usual in any works with which Prof. Schlegel has to do, are beautifully drawn—a rare merit in these days.

In the 'Archives Néerlandaises' for 1867, Heer Crommelin publishes some "Contributions à l'Hybridologie Ornithologique." Those who are acquainted with the two excellent papers of M. de Selys-Longchamps, in the 'Bulletins' of the Royal Academy of Brussels (vols. xii. and xxiii.) know that it is not easy to detect a new hybrid among the European *Anatidæ* which has escaped the notice of that expert Belgian naturalist; but Heer Crommelin seems to have found two such new crosses. One, between the Mute Swan and the tame Goose, it is true, has been before mentioned by Mr. Morton, but, it is believed, erroneously. The offspring of this union did not arrive at maturity. The second new cross recorded by our author is believed by him to be between *Anas acuta* and *A. strepera*. We must remark that in the case of wild hybrids there must always be very great uncertainty as to their parentage; even among partly tame birds such uncertainty sometimes exists; it is a wise man who always knows his own duck's father! As an instance of this we may cite the remarkable case described and figured by Mr. Selater (P. Z. S. 1859, p. 442, pl. clviii.) of the hybrids bred in the Zoological Gardens, and known to have been produced from *Tadorna vulpanser* ♂, and *T. cana* ♀. No person seeing or even examining these specimens could have rightly guessed their descent, the plumage not being at all a blending of the plumage of their parents, but possessing some characters, to wit "the dusky-grey flanks," quite distinct from either, and possessing, indeed, a certain resemblance to that of the Australian *T. tadornoides*, reverting, no doubt Mr. Darwin would say, to the coloration of some remote progenitor, a *Tadorna prisca*, of which the Australian Shelldrake is now the form that varies least from the original stock.

4. GERMAN.

It has long been known that Natterer was a model traveller; and it has long been a subject of regret that so little respecting his researches and discoveries in South America, where he

wandered nearly twenty years, had been made known. This was the more surprising, considering that the Museum of Vienna had profited so largely by the collections he formed, and that a large quantity of his manuscript notes existed in that establishment. Herr von Pelzeln has set himself to supply the deficiency, and has published the first portion of a work on the ornithology of Brazil, with special reference to the results of Natterer's travels*. When the book is completed we hope to speak more at length concerning it; meanwhile we will only say that we can highly recommend it to our readers as a very carefully executed work, and one which reflects credit as much on the labours of the ornithologist to whose memory it is a fitting tribute, as on those of the ornithologist who is its author.

Herr von Pelzeln has also communicated a short paper to the Transactions of the Imperial and Royal Zoologico-botanical Society of Vienna (1867, pp. 315-318) on a collection of birdskins, sent from New Zealand by Dr. Julius Haast. The fault of the collection is that no precise localities are given for the specimens. Among the species of which examples were sent, two are described as new, *Anthornis ruficeps* and *Xenicus gilviventris*; and the author takes the opportunity of describing a third, *Callæas olivascens*, which was obtained at Auckland during the voyage of the Austrian frigate 'Novara,' and included by him in his account of the ornithology of that expedition, under the name of *C. cinerea* (Reise 'Novara,' Vögel, p. 86). While on the subject of New-Zealand ornithology we may mention that Mr. Buller's "Essay" before noticed by us (*Ibis*, 1867, pp. 131-133) has been translated into German by Herr O. Finsch, for the 'Journal für Ornithologie,' and appears in the September "Heft" of that periodical (pp. 305-347) interspersed with many valuable notes by the industrious translator. The species described by Mr. Buller as *Mimus carunculatus*, on which we before

* Zur Ornithologie Brasiliens. Resultate von Johann Natterers Reisen in den Jahren 1817 bis 1835 dargestellt von AUGUST VON PELZELN, Custos am K. K. zoologischen Cabinete in Wien. I. Abtheilung. Wien: 1868. (London: Williams and Norgate). 8vo, pp. 68 and xxxi.

commented, is referred by Herr Finsch to *Anthochæra*; but as Mr. Buller's specific name is already occupied by an Australian species of that genus, Herr Finsch proposes to call the New-Zealand bird *A. bulleri*.

It behoves us to mention that our excellent and much esteemed contemporary the 'Journal für Ornithologie' has entered upon a second Series with the present year. We accordingly make our compliments to its learned editor and all who are concerned in conducting it on this auspicious event, and wish their "Neue Folge" all the success it so highly deserves. We can with great pleasure look back on the amity which has always prevailed between Dr. Cabanis's 'Journal' and 'The Ibis;' in neither publication will be found a single word derogating from the other. That this good feeling will continue there can be no reason to doubt. We are very glad to find that it is intended to publish a full index to the *fifteen* volumes of the old Series; this alone was wanting in order that the very great value of the information they contain might be thoroughly appreciated.

After a very minute and elaborate examination of the eggshells of various birds, Herr Rudolf Blasius comes to the conclusion that in respect to these productions the microscope affords little, if any, sure help to classification. The layers of which the shell is composed vary; and especially is this the case with the main layer (Kernschicht) which varies in the same egg even; oologists therefore cannot expect histology will do much for them. Nevertheless, if any there be who think otherwise, we recommend them to study this gentleman's little work*, on which he appears to have bestowed great pains, and, we can only regret, with a result so little satisfactory. The author sets a very good example with regard to the bibliography of his subject, as copious lists of writers who have before treated it are furnished; indeed it was in consequence of the investigations of one of them, Dr. Landois (*cf.* Rec. Zool. Lit. ii. pp. 85, 86), that

* Ueber die Bildung, Structur und systematische Bedeutung der Eischale der Vögel. Von RUDOLF BLASIUS. Leipzig: 1867. 8vo, pp. 48.

Herr Blasius was induced to set about his series of observations.

5. SWEDISH.

Our friend Dr. Malmgren has kindly forwarded us a copy of an Appendix which he has written to the narrative of the Swedish Spitsbergen Expedition of 1864*, containing a brief account of the natural history of that country. This we conclude was written some time ago, as the author, in referring to some remarks of his own (Journ. für Orn. 1865, pp. 385-400) on a paper which appeared in 'The Ibis' (1865, pp. 199-219, 496-525), takes no notice of an article (Journ. für Orn. 1867, pp. 207-211) which contained some comments on those remarks.

6. AMERICAN.

The 'Memoirs' of the Boston Society of Natural History contain (vol. i. pp. 131-172) an able exposition by Dr. Elliot Coues of the structure of *Colymbus torquatus* (sc. *glacialis*), which is described in language at once precise and clear, after a fashion which some other anatomists would do well to imitate. The osteology is treated at considerable length, the myology less completely. The paper would, however, have been more satisfactory had not the illustrations to it been somewhat scanty.

Two papers by our late friend Dr. Henry Bryant appear in the 'Proceedings of the Boston Society of Natural History.' The first (vol. xi. pp. 63-70) consists of "Additions to a List of Birds seen at the Bahamas," a subject which, as may be gathered from the title, had been before treated by the author (cf. Ibis, 1860, pp. 97-98). On the occasion of Dr. Bryant's visit to the islands in 1859, he was told that Inagua, one of the largest and the most southerly of the group, was extremely fertile, possessing forests of large trees and rich savannas. He consequently thought that this "garden of Eden," as it had been described by him, would prove to be of a different geological formation, and hoped that it would furnish a somewhat different *ornis*. In order to determine these points, he visited it in the winter of 1865-6,

* Bihang till berättelsen om den Svenska expeditionen till Spetsbergen 1864, af A. J. MALMGREN. Stockholm: 1868. 8vo, pp. 22.

and was much disappointed to find that Inagua was, if any thing, more desolate and dreary than the other islands, and belonged to precisely the same formation. Twenty-three birds are mentioned as having been found upon it, but no novelty. Indeed the only new species met with by the Doctor in his second visit was *Geothlypis rostrata*, from Nassau, a bird differing from the common *G. trichas* chiefly by its larger size and entirely yellow belly.

Dr. Bryant's second paper (*tom. cit.* pp. 89-98) is a "List of the Birds of St. Domingo," an island of which not much is known ornithologically, the most complete list of its birds hitherto published being that by M. Sallé (*P. Z. S.* 1857, pp. 230-237). Several local races, which no doubt many persons would call species, are distinguished by Dr. Bryant; but the only new bird described as of that rank by him is *Chrysomitris dominicensis*, from the western or Haytian end of the island. This species seems to be by no means a normal *Chrysomitris*, having a bill (to judge by the figure) almost as thick as a Sparrow's; and we should suppose it ought to be referred to some other genus.

In the 'Proceedings' of the Philadelphia Academy the indefatigable Mr. Lawrence describes two new species from New Granada. There are *Phænicothraupis vinacea*, probably most nearly resembling *P. rubica*, and *Leptoptila cassini*, which has been on two previous occasions, once by Mr. Cassin (*Proc. Ac. Sc. Philad.* 1860, p. 195) and once by the author himself (*Ann. Lyc. N. Y.* vii. p. 333), taken for *L. verreauxi*, from which it differs in its much darker colouring. Mr. Lawrence also proposes to rename his *Tachyphonus rubrifrons* (*Proc. Ac. Sc. Philad.* 1865, p. 106) *T. propinquus*, having discovered that the red on the forehead of the male specimen he first described is due to a stain. On principle we object to this alteration; Strickland showed years ago that names were names and not descriptions, and accordingly that it mattered nothing whether they were appropriate or the contrary. It would be exceedingly inconvenient if all the persons of the name of Redhead in England or America who might happen to have dark hair, were to insist on being called Blacklock!

It may seem very ungracious to say so, but we must confess we regret to find Mr. Cassin continuing his "*Fasti Ornithologiæ*." We would far rather see him occupied in revising with his wonted skill and diligence obscure groups of birds. His last labour is that of galvanizing the dead body of names applied by a nameless author in the '*Encyclopædia Londinensis*.' There is no doubt that our good friend has, to a certain extent, the law of priority on his side ; but we would ask him to have some compassion upon human infirmity ; if, however, he will not listen to an appeal for mercy, we will meet him on his own ground. Can the names bestowed by a nameless author stand ? Mr. Cassin, we think, is bound to show us who his author was. As it is, he has only told us who he was not. Mr. John Wilkes, the Editor of the '*Encyclopædia Londinensis*,' was not the Mr. John Wilkes of '*North Briton*' notoriety ! But we entirely refuse admission among the ranks of ornithologists even to the editor of the aforementioned *Encyclopædia*, and we must regard the ornithological articles therein as the work of an anonymous authority. Now an anonymous authority is in scientific matters justly regarded as no authority at all. When we have somebody tangible to deal with, then we shall be in a position to consider the question Mr. Cassin has raised ; and then, if need be, we may possibly allow the validity of the names bestowed by this somebody on the thirty-two species to which he was apparently the first to affix Latin appellations*.

XX.—*Letters, Announcements, &c.*

THE following letters, addressed "To the Editor of '*The Ibis*,'" have been received :—

Dobroyde, Aug. 23, 1867.

SIR,—During my rambles in search of specimens in the Clarence-River district, and especially in the neighbourhood of

* It would seem as if there must have been more than one edition of this *Encyclopædia*. In the copy we have consulted, though the pagination, date, and other particulars agree with those given by Mr. Cassin, we do not find any mention, under Latin names, of the various species of *Buceros*, for example, the nomenclature of which is said by him to be thereby affected.

Grafton, I found *Donacola castaneothorax* very abundant, meeting with it almost every day in small troops of from five to ten in number. As very little has been recorded with respect to this species, a few notes upon it may not be unacceptable.

I had no difficulty in finding its nests and eggs, both of which closely resemble those of the *Estreldeæ* and *Amandinæ*. The nest is a large structure, in shape like a flask or bottle placed on its side; and the entrance, which is about an inch and a half wide, is situated at the end of a long neck, the whole being about 14 inches in length by 6 inches in diameter. It is usually built near the top of some bushy shrub or in tangled masses of vines, and composed of grasses and the leaves of reeds, with fine stems of plants (*Goodenia* or *Lobelia*, according to the district its owner frequents), being lined with finer materials—the downy tops of reeds and flags, and occasionally a few feathers. It closely resembles the nest of *Estrela phaeton*, which I have received from Port Denison, and, like that, is often found placed among the stiff leaves of a grass-like plant growing upon the sides of the trees in and about the edges of the scrubs. The eggs are from four to five in number, slightly larger than those of *Estrela temporalis*, being from .6 to .65 in. in length by from .4 to .5 in. in breadth. They are of a dead limy-white colour, and are more frequently elongated than roundish in form.

I usually found *Donacola castaneothorax* in company with *Estrela temporalis*, frequently in the fields picking out the grain from the ears on the ground round the wheat-stacks. During the month of September I found them in all stages of plumage and in every variety of situation,—in the “opens,” among the brushes, and on the edges of creeks and lagoons; while a pair might often be seen on the river-bank, either hopping about among the herbage under the acacia-trees, or perched on the reed-tops, picking out the seed from the feathery tassels which fringe its edges.

Hundreds, I might say thousands, of this species are sent down yearly to Sydney from Rockhampton, Port Denison, and other ports of Queensland. Few, if any, come from the Clarence or Richmond Rivers; for, with the exception of *Amadina*

lathamii and *Estrelda temporalis*, I do not know of any species which are found in those parts, while from the Queensland ports six or eight species are annually received by the Sydney dealers. From South Australia not more than two or three species are procured, chiefly *Amadina castanotis*.

The young of *Donacola castaneothorax*, on leaving the nest, are of a uniform dull buff-colour. The fully adult bird differs slightly from that described by Mr. Gould, having the *upper part of the flanks chestnut-brown*, barred alternately with black and white. The lower part of the flanks is white barred with black, more largely at the tip of the feathers; the thighs, vent, and *under tail-coverts are jet black*. The rump, upper tail-coverts, and two middle tail-feathers are of a glossy waxy orange-yellow. The space between the eyes and bill, line over the eye, ear-coverts and throat, black, with a tinge of plum-colour in certain lights; the ear-coverts have a narrow line of brown down the middle of each feather. The rest of the head is dark-brown, the feathers with lighter edges. There is also a wash of reddish-chestnut (much deeper in tint than that of the chest) over the back and wings. Bill, legs, and toes dark horn-blue, the edges of the mandibles lighter; the claws dark-brown. The whole length is 4·25 inches; bill ·4 by ·3 across the nostrils; tail 1·5; tarsus ·55; wing from carpal joint 2·1 inches. The sexes are alike in plumage.

I am, &c.,

EDWARD P. RAMSAY.

Camp, Punjaub,
December 7, 1867.

SIR,—I think I have ascertained beyond doubt that *Saxicola capistrata* is only the young male of *S. picata*. I come to this conclusion, first, because, out of some twenty specimens of the former shot and preserved, not one was either a female or an old bird; secondly, because I have three specimens, exactly bridging the difference between the creamy-white head of *S. capistrata* and the black of *S. picata*. In one the centre of the white head is becoming dusky; in another the top of the head is black, edged with dusky, only leaving a broad superciliary creamy stripe con-

tinued to the occiput; in the third the stripe has disappeared, only a few of the feathers being dusky instead of black. Thirdly, because females shot in company with males of both forms are identical. Fourthly, because the birds correspond in every respect except in the colour of the top of the head*, even to the yellow colouring of the interior of the mouth, which reminds one forcibly of the same peculiarity in some of the Flycatchers.

I cannot help here remarking that these birds *are* Flycatchers in habit. I have watched them now time after time, sitting on any high solitary spray of a thorny bush (the koreel, *Capparis spinosa*, is perhaps their favourite), flitting their tails for a moment or so, and then darting off their perch, seizing a fly and returning to their post, just like a Shrike, a Flycatcher, or a Roller. Often, no doubt, they darted on to an ant or tiny worm, and remained an instant on the ground to devour it; but more often they caught flies and tiny beetles in the air.

To return, it would be interesting to ascertain whether the true *S. leucomela* of Europe and North Africa is, like *S. capistrata*, the young of some species of which the adults have black heads.

The sandy, half desert, treeless plains of the cis-Sutledge States of the Punjab (where I now am), between Ferozpoor and Fazilka, on the Sutledge and Sirsa, Hessar and Hansie, are just the localities that all our Indian *Saxicolæ* affect. One morning recently I shot all the five supposed species, males and females, within the space of a square mile.

Saxicola ænanthe, here rather rare, is one of the commonest of our cold-weather visitants in the North-western Provinces. In Meerut, Agra, Muttra, Etawah, and doubtless other districts they abound; but while affecting waste places, like *S. capistrata* (vel *picata*) and the others, with *S. atrogularis* they like waste places in the neighbourhood of cultivation better, it seems to me, than perfect wastes like those south of Ferozpoor. Mr. Blyth (Ibis, 1867, p. 14) seems to fancy that the females of *S. picata* and *S. leucuroides* may have been mistaken for *S. ænanthe*; but the latter bird is one of the commonest in Upper India; and though it is just possible that it may differ in some trifling particulars

* [Mr. Gould tells us that *S. capistrata* has more white on the back than *S. picata*.—Ed.]

from the true *S. ænanthe* of Europe, no one could ever confound it with the females of *S. picata* (vel *capistrata*) or of *S. leucuroides*, which are of a wholly different shade of brown. On the other hand, the females of *S. atrogularis* might easily be, and constantly are, mistaken for *S. ænanthe*; but the bills and feet are feebler, the birds are slightly smaller and lighter (in weight, I mean). There is no supercilium, or only a trace of it; the lores are grey; all the tail-feathers are nearly wholly black, there are no narrow white tips; and the upper tail-coverts are fawn-coloured. *S. atrogularis* is common in waste places all over the Punjab and the North-west Provinces west of Cawnpoor.

S. picata vel *capistrata* (I do not know which name is the earlier*) is very common in this portion of the cis-Sutledge States of the Punjab, and is found occasionally throughout the North-west Provinces westward of Allahabad, but of course only in suitable localities—wastes thickly dotted with thorny scrub.

Saxicola leucuroides is the rarest of all, I believe, so far at least as number of specimens is concerned; but even this species is not very uncommon in many localities in the Punjab, North-west Provinces, Oude, and the Central Provinces, and has, it strikes me, a wider range in India than any of the others. I have, however, observed this less closely than the other species; and therefore, although some of the specimens now before me lead me to doubt whether even this is a good species, I say nothing more about it for the present. I hope soon to send you a paper on our Indian *Saxicolæ*, with a series of specimens, male and female, of all of them.

Pelecanus crispus must be added to the birds of India. I have now quite recently shot a third specimen. Mr. Blyth, in a letter to me, seemed to doubt the correctness of my identification; but there can, I think, be little doubt of the species. The large size, the feathers of the forehead not prolonged to a point, but ending squarely emarginate, the pearly whiteness of the plumage, the black shafts of the feathers, the coloration of the bill and feet, all seem to me to prove the species. One specimen

* [We believe there can be no doubt on this point. *S. picata* was described many years ago by Mr. Blyth; *S. capistrata* was only recently separated by Mr. Gould from the *S. leucomela* of Pallas.—ED.]

(a female), that I shot last year in the Etawah district just at the commencement of the warm weather (when all the Pelicans but *P. philippensis* leave us), had at the base of the neck a very pale straw-coloured patch; but that which I lately killed was of a uniform silvery hue, very different from any of our other Indian Pelicans. The dimensions of the female killed last year and the male that I lately killed were as follows:—

	Female.	Male.
	inches.	inches.
Length	67·5	70
Expanse	113	114
Wing.....	27	26·25
Tail	7·5	9·5
Tarsus	4·625	4·25
Bare portion of tibia	1·25	1·375
Foot, greatest length along middle toe ..	6	6·25
„ greatest width	8·5	8·75
Middle toe	5	5
„ its claw	·75	·687
Hallux	2	2
„ its claw	·75	·687
Bill from front including nail	15	16·5
„ from gape	16	17·25
„ width at gape	2·375	2·562
„ height at front	1·218	1·218
Pouch to where feathers commence	21·25	21·875
Circumference of tarsus	3	3
Weight	20 lbs.	18½ lbs.

Legs and feet in both pure plumbeous; irides very pale yellow; orbits, in the female, which I take to have been in nearly full breeding-plumage, bright though pale orange,—in the male, which was in the cold-weather plumage, and a young bird withal, creamy-white with a faint pink tinge.

Bill, in the female, dusky plumbeous; nail pale-orange yellow; edges of upper and lower mandibles for the terminal two-thirds yellowish horny. Pouch a deep orange-red, with a black patch on each side just at the base of the lower mandible.

In the young male the upper mandible was pale brown, greyish towards the tip, and dusky towards the base on the culmen;

nail wax-yellow. Lower mandible and pouch uniform creamy-white.

In the female, excepting the quills, primary coverts, and winglet, the whole plumage was white, with more or less of a pearly grey tinge on both the upper and under surfaces, according to the light in which it was looked at. There was a broad band at the base of the neck in front and at the sides, faintly tinged with a very pale straw-colour: there was not the faintest tinge of rosy anywhere.

The whole of the feathers of the head and neck were very narrow, long, soft and silky, much curled and twisted on the head, especially behind and just above the eye; and the feathers of the sinciput were much elongated, so as to form a dense full crest some 4.25 inches long. A line of feathers about 1.5 in. wide down the whole back of the neck was of a more snowy and less silky white than the rest of the neck. The scapulars, rump and upper tail-coverts, and median and greater wing-coverts were conspicuously black-shafted; and all these, except the longest of the scapulars, were very long and lanceolate. A few of the longest scapulars were broad and round, or mucronate at the end; and two or three of these had a good deal of greyish-brown about them, probably the remains of immature or non-breeding plumage. There was a beautiful satiny gloss over the whole back, scapulars, and tail; the two exterior tail-feathers with nearly the whole shafts black, and with a decided grey tinge on the outer webs to near the tip; the rest of the tail-feathers with only the terminal third of the shafts black. The primaries (all of which were white at the base) and their coverts and the winglet were dark brown. The second to the fifth primary emarginate on the outer web, and silvered with grey on the last above the emargination, which in the second was hidden by the coverts. There was more or less silvering of grey on the outer webs of all the other primaries, their coverts and winglets. The first five primaries were faintly notched on the inner web, and were pale or greyish-white on the latter above the notches, while the rest of the primaries had the inner portions of the inner webs white. This was still more conspicuous in the secondaries, which were of a much lighter brown, many of them having their

whole outer webs a silver-grey. Probably those which still retained the brown were the remains of the less mature plumage. The tertials were some of them pure white, while some were pearly-grey on the outer webs, and on the inner greyish-brown paling to grey or white towards the margin. The feathers of the base of the neck and breast were very thickly set, very narrow and pointed, the filaments along the margin a good deal separated.

The male, doubtless a young bird, altogether wanted the linear, lanceolate feathers. It had the whole head, neck, and lower surface of the body, and under surface of the wings (except the tips of the quills and a row of small coverts near the margin of the wing, which were pale wood-brown), the middle of the back, between the shoulders, the whole middle and lower back, rump, and upper tail-coverts white—slightly shaded with grey about the back of the neck, owing to the dark bases of the feathers showing more or less, but elsewhere very pure. The feathers of the head and neck were far shorter and more fur-like than in the female. There was scarcely any of the twisting and curling about the ear-coverts; and the crest was very small in volume and not above 2 inches in length. The whole of the scapulars and shoulder-feathers were broadly tipped with pale brown, which, owing to their overlapping each other, was the chief colour visible; and though their shafts were dark as in the female, they had not the linear lanceolate character so conspicuous in the latter. The upper tail-coverts were dark-shafted, as in the female. The tail-feathers were white at the base on both webs, the greater part of the rest of the inner web white with a little grey towards the tips, and of the outer webs silvery grey; fully the basal third of the shafts white, the terminal two-thirds blackish; the tertials and their coverts nearly pure white. Only a row or two of the lesser coverts along the edge of the wing pale brown, and the tertials themselves and greater coverts with a tinge of the same hue about the tips. The whole of the lesser and median coverts, from the elbow to the carpal joint, pale brown (some of the feathers greyer and others more buffy) darker-shafted, and faintly tipped with white. Primaries and secondaries with white at their bases on both

webs, and with a large portion of their inner webs white, the rest a darkish brown. Winglet and primary greater coverts much the same colour. The greater coverts of the secondaries were mostly pure white, those only near the primaries tinged at the tips with rather pale buffy-brown.

I have thus transcribed *verbatim* from my notes (at the risk of being insufferably tedious) the descriptions of these two birds, recorded when they had just been killed, because Pelicans are not easily sent by post for comparison; and as Dr. Jerdon does not include *P. crispus* in his 'Birds of India,' and Mr. Blyth doubts its occurrence there, I think it very important that this species, of which I have now three examples, should be identified beyond all doubt. I myself believe it to be *P. crispus*; but the measurements and description above given will surely enable those who have access to museums at home to determine this point*.

Myriads of the Bughaira-Lark (*Melanocorypha torquata*) swarm in every one of the few "bajera" (*Peucillaria spicata*) stubble-fields that here and there diversify this almost waterless waste. In the lower and central portions of the Duab of the Ganges and Jumna this bird occurs, but only as a straggler, its little relative the Short-toed Lark, *Calandrella brachydactyla*, being there found in countless flocks. Here, on the other hand, the Short-toed Lark has few representatives, while the Bughaira-Larks are innumerable. These latter have a rather sweet note, not unlike that of *Galerita cristata*; they rise in rapid succession as you walk through the tall stubble, but are not at all wild; I shot thirteen running in a small field.

Of the European Courser, *Cursorius gallicus*, I found several small parties between Ferozpoor and Sirsa. People assure me that they breed in this country and in this neighbourhood. If so, it is rather singular; for in this same district I procured specimens of the Indian Courser, *C. coromandelicus*, a very nearly allied bird, differing chiefly in its much more decided coloration, which certainly does breed here. One scarcely expects to find two such very closely allied forms living and breeding in the same

* [Mr. Blyth, on reading the above remarks, is satisfied that Mr. Hume is right.—ED.]

locality. Perhaps, however, *C. gallicus* is only a winter visitant, or this may be the exact spot where the territorial limits of the two species meet.

The European Raven, *Corvus corax*, is common everywhere at Jhelum, Rawul Pindee, Lahore, Ferozpoor, and Sirsa. I cannot understand Captain Hutton's saying (as quoted by Dr. Jerdon) that he had never seen it in India. It is most common about stations and large towns; but a few are found everywhere about the upper portion of the Punjaub, even in the bare wastes of the Sirsa district.

The Willow-Sparrow, *Passer salicarius*, is found throughout the Sirsa and Hansie districts. In the Duab, at Etawah, and near Gwalior, I have shot single specimens; but about Sirsa it is found associated in immense flocks with the Common Sparrow (*P. indicus*). In some flocks these latter are mere stragglers, in others they form nearly one-half of the party. Wherever grass, seed, or bajera-fields are plentiful, bunches of these Sparrows are to be seen, now spreading wide over a field, now settling in a dense crowd on some large thorny caper-bush. Yesterday I got over fifty in three shots. All had fed on the seeds of the bajera (the bullrush-millet, as I have elsewhere called it). I had never killed so many Sparrows at a time, at least since I was a boy; and the very great diversity in plumage of the males struck me forcibly. The general tone of the mantle varied from a dingy rufous or sandy-chestnut to a regular maroon, while, as regards the extent and intensity of the black on the throat and breast, no two specimens agreed. I feel certain that any one comparing the two extremes of the series would have been inclined to separate them as distinct races; but there was not the slightest gap in the chain, and one and all were unquestionably *Passer indicus*. Whether our bird deserves a separate specific name, you will, I hope, be able soon to decide for me, as I am going to send home a large series killed at different seasons and places.

Of the Willow-Sparrow the males are very easily distinguished from those of the common bird. The black comes much lower down on the breast, and is much wider there; and the sides and flanks have numerous somewhat lanceolate blackish dashes. The

head and nape are deep chestnut (each feather narrowly tipped at present with lightish brown that wears off later in the year), instead of grey as in our domestic friend (or enemy, as some consider him). On the mantle the feathers are centred with black, edged, but by no means very broadly so, with straw-yellow, instead of being very broadly margined with rufous or chestnut as in the House-Sparrow. There is a well-marked white supercilium. The Willow-Sparrow is slightly larger and heavier, with a larger bill and somewhat longer hind claw.

The females of both species are much alike; though a difference in size, similar to, though less marked than, that noticed in the males, is observable.

One difference between the females seems constant: those of the Willow-Sparrow have the whole throat, front of the neck, and breast obscurely but yet unmistakeably streaked with faint dusky longitudinal striæ, similar to, though much less conspicuous than, those exhibited by the females of *Carpodacus erythrinus*. This may be only a seasonal peculiarity; but at the present moment it enables one at a glance to separate the females of the two species. Other differences consist in the supercilium of the Willow-Sparrow being more dingy, and in the entire absence in the mantle of the *very faint* tinge of rufous almost always observable in that of the female Indian House-Sparrow when freshly killed.

I have lately killed a great number of the Indian Houbara, *Otis macqueeni*, and hope soon to tell you more about them; at present, with reference to Dr. Jerdon's remarks, I shall only say that both male and female have, when adult, both the ruff and crest; they have these even now in December, and apparently keep them at all seasons; both are more developed in the male than in the female. The sexes, except as regards length of ruff and crest, are nearly alike in plumage, though the female is a little lighter in colour; the chief difference consists in the size, the males weighing up to $5\frac{1}{4}$ lbs., the females never exceeding $3\frac{1}{2}$ lbs. Some old females had such fine ruffs that we took them at the moment we shot them for males; and others, young males, as they proved on dissection, had such short ruffs that I fancied they were very large females.

I am, &c., ALLAN HUME.

Cape Town, Dec. 17, 1867.

SIR,—The publication of my ‘Catalogue of the Birds of South Africa’ has given such an impetus to Ornithological inquiry in this colony, and has brought me so much additional information respecting nests, eggs, and habits, from new correspondents as well as old ones, that, if you will allow me an occasional page or two in ‘The Ibis,’ I shall be happy to communicate such of my notes as I think will prove interesting to your readers.

2. NEOPHRON PERCNOPTERUS. When I published the ‘Catalogue,’ I was not aware that this bird bred with us, all my inquiries having failed to produce an affirmative reply. A new correspondent, however, at Colesberg, Mr. A. F. Ortlepp, whose name will often appear in future, has informed me that they breed near that place, and has forwarded two magnificently coloured eggs, exceeding in that respect anything that I remember to have seen in collections. Mr. Ortlepp mentions a curious circumstance: beneath the nest were found vast numbers of the *crania* of small Rodents.

5. OTOGYPS AURICULARIS. These birds breed in August. Mr. Henry Jackson, from Beaufort, writes on the 30th, “Visited the Black Vulture’s nest to-day, and found one young one, two or three days old.” On the 31st he writes of

6. GYPS FULVUS. “To-day we stormed the Vulture’s ‘krantz’ [precipice], and only got three eggs—two addled, and one which was chipped by the young bird just ready to emerge. Had we been three weeks or a month earlier, we might have got several dozen. My last year’s attempt was made on the 19th October; and then the young birds were so large as to be mistaken for old ones, from the top of the ‘krantz’.”

38. ELANUS MELANOPTERUS. The egg of this species, received from Mr. William Atmore, of George, is pure white. Axis 1" 11"; diam. 1" 5". They seemed to come in with the Quail this year, about the 15th of October.

48. SERPENTARIUS REPTILIVORUS. A new correspondent, Mr. G. G. Reitz, of Riversdale, denies the statement that the legs of the young depend through the nest. He suggests that the extreme brittleness of the bones arises, in birds reared in confinement, from the fact that they are deprived of the lime de-

rived from the bones of the small mammals and reptiles devoured by them in their wild state and brought by their parents. He suggests sprinkling their food (usually raw meat) with chalk as a substitute. This is not a bad idea for those who rear Falcons.

59. *BUBO MACULOSUS*. Mr. H. Jackson sends numerous eggs of this species; he says it makes no nest, but lays on the bare sand, on a ledge in a river-bank.

HIRUNDO RUFIFRONS. My son has found this species breeding at Grootevadersbosch. The eggs are white, much pointed in shape at the small end, and spotted chiefly at the other, in the form of a ring, with dark green, brown, and yellow dots, with here and there a large well-defined spot. Axis 11"; diam. 7".

86. *HIRUNDO LUNIFRONS* [*H. alfredi*, Hartl. *suprà*, p. 153]. On this species Mr. Ortlepp makes the following interesting observations:—"Nests closely packed together, composed of pellets of mud. I counted no less than sixty in a square yard, against an overhanging bank. Each nest is half a sphere, with a small hole for entrance, sometimes with a short neck. Boers tell me that formerly these birds were unknown to them. When first seen they appeared in small numbers, which is not the case now, as I saw hundreds hawking about near Sandpoort. I calculate that at least 2000 will be hatched at that place this year." The eggs sent are very beautiful, being a delicate white, tinged with the faintest blush of pink, spotted chiefly in a ring near the other end with different-sized spots of various shades of brown verditer, and even yellow.

118. *UPUPA MINOR*. My son Leopold has taken several nests near Swellendam, chiefly in the walls of old "kraals" (enclosures for sheep and cattle). He is not certain that the female never leaves the nest, but speaks of always finding her at home, and of the stench of her dwelling. The eggs are of a very pale greenish-blue ground, smeared throughout, unevenly, with indistinct pale brownish. Axis 12"; diam. 8".

123. *NECTARINIA AFRA*. Mr. Atmore found several nests of this species in the Long Kloof, George district, in October. They were "well woven with the fibre of *Asclepias*, grass-bents, snake-skins, and all sorts of odd things, and then filled up with feathers. My boys have taken three or four nests, each with but

two eggs ; and I believe that to be the orthodox number." These are similar in colour (clouded grey-brown) and size to those of the western species *N. chalybea*.

131. *NECTARINIA FUSCA*. This plain-coloured Sun-bird I never saw till Mr. Ortlepp forwarded several individuals from Colesberg. To the description in my 'Catalogue' must be added that the sides of the throat, chest, belly, and under tail-coverts are white, more or less pure, the inside of the wing black, and the axillary tufts brilliant scarlet and orange. Length 5"; wing 2" 4"; tail 1" 9". "Nest domed, suspended, composed of wool and fibres, and lined with feathers and goat's hair." The eggs, three in number, are so unlike those of any Sun-bird with which I am acquainted, that, had I not confidence in Mr. Ortlepp's care and discrimination, coupled with his description of the nest, I should have concluded they did not belong to this species. They are white, spotted with intensely dark purple-brown and pale purple spots, chiefly forming a close-set ring, near the obtuse end. Axis $6\frac{1}{2}$ "; diam. $4\frac{1}{2}$ ".

144. *DICÆUM RUFESCENS*. The discovery of the eggs of this curious bird is owing to Mr. Jackson. They are white, spotted and blotched with brown and faint purple, chiefly in the form of a ring at the obtuse end. Axis 9"; diam. 6". The nest is usually concealed in the bottom of a bush. To the same gentleman I also owe the eggs of

160. *DRYMÆCA SUBRUFICAPILLA*. They are white, faintly tinged with green, and spotted with small red-brown and purplish spots, chiefly at the obtuse end, in the form of a zone. Axis 7"; diam. $5\frac{1}{2}$ ". These differ from the usual type of *Drymæca*-eggs in South Africa, wherein the ground-colour is usually a decided blue or green, with large irregular blotches.

165. *DRYMÆCA THORACICA*. Le Vaillant states that the eggs of this species are reddish-white ; my son has forwarded several from Grootevadersbosch, near Swellendam, which are white, spotted with various-sized dark brownish-red spots chiefly at the obtuse end, and somewhat in the form of a ring. Axis $7\frac{1}{2}$ "; diam. 6".

171. *DRYMÆCA BRACHYURA*. To my description of this species must be added that the vent and belly are of a pale

citron-yellow. My original specimen was very imperfect; but Mr. Ortlepp has sent several from Colesberg in fine order. He describes the nest as a "small cup of wool and wild cotton, lined with a few grass-stems, and placed in a bush; the eggs, three in number, are pure white, minutely spotted on the whole obtuse end with red dots. Axis 7''; diam. $5\frac{1}{2}$ ''.

172. *DRYMÆCA AFRICANA*. Mrs. Barber sends eggs of this species, which are, equally with those of the two preceding, most unlike the typical eggs of *Drymæca*. They are white, more or less clouded (at the obtuse end chiefly) with spots and blotches of a washed-out indian-ink colour. Axis 11''; diam. 7''.

176. *CALAMODYTA RUFESCENS*. Mr. Ortlepp sends this little Warbler from Colesberg, and informs me that "the nest is a cone of wool and straw placed between reeds and rushes; eggs three." These are white, spotted throughout, but chiefly at the obtuse end, with various-sized brown and light purple irregular dots and blotches. Axis 8''; diam. 6''. I am more than ever convinced that the two species described by Le Vaillant under the names of "*La caquetteuse*" and "*L'isabelle*" should be referred to this species, or to this and the next. I put no confidence in his statement that *L'isabelle* lays pure white eggs.

183. *BRADYPTERUS CORYPHÆUS*. Mr. Jackson, Mr. Ortlepp, and my son, all forward eggs of this species, which differ from those found by me at Beaufort, in that they are irregularly blotched with brown. Axis 9''; diam. 6''. They are very Saxicoline in appearance—as is also the nest, off which I several times put the bird whose eggs I describe in my 'Catalogue.'

I have received eggs of various Chats, but leave their description for another occasion, as I am convinced from specimens that have been forwarded, that several species have been overlooked or confounded with known species. I believe that Le Vaillant has mingled several together under the "*Traquet montagnard*;" but must leave a solution of my doubts till I acquire a larger series of specimens.

207. *PRATINCOLA PASTOR*. Mr. Ortlepp writes, "Nest like that of *Motacilla capensis*, in a head of rank grass, near the river's side." Three eggs sent are light verditer, indistinctly

clouded with faint reddish markings, which coalesce and form a ring at the obtuse end. Axis 9''; diam. 7''.

301. *DICRURUS MUSICUS*. Few eggs that have come into my hands have given me greater pleasure than the egg of this species. A description without a coloured drawing gives but a faint idea of its great beauty. The nearest approach I know of to it, in form and coloration, are the eggs of the genus *Tyrannus*. My son took a single egg from a nest in a thick, large bush. It is of the most delicate pink colour, unevenly marked throughout with various-sized spots of pale and dark purple. Axis $11\frac{1}{2}$ ''; diam. $8\frac{1}{2}$ ''.

Le Vaillant states that the spots are black and generally square. Nothing of this is visible in the lovely example before me. Since this was written he has sent two more.

330. *CORVUS ALBICOLLIS*. Several eggs of this fine Crow have been sent from various correspondents. They are pale green, profusely marked with dark brownish-green blotches, confluent on the obtuse end. Axis 1" 11''; diam. 1" 3''.

344. *JUIDA FULVIPENNIS*. Mr. H. Jackson has discovered this species breeding at Nels Poort, in holes in banks. The eggs are of a lovely light verditer, minutely speckled throughout with brown. Axis 1" 4''; diam. 9''.

353. *DILOPHUS CARUNCULATUS*. Mr. J. P. Maunsel Weale writes me word from Bedford that some years ago this species appeared in that neighbourhood in considerable numbers. "They built on thorn-trees on the Page River; their nests were described as filling the tree, so that it resembled a Kaffir hut." This confirms the account given me by Mr. Schwartz, of Zoetendalsvley. It is singular that they should thus migrate to nests in different places.

365. *HYPHANTORNIS AURICAPILLUS*. I had failed to recognize this species until a specimen collected by Mr. Andersson in Damara Land attracted my attention. I am now quite satisfied that this is only a small race of *H. capitalis*, into which its name must sink as a synonym. Swainson's measurements (*Anim. Menag.* p. 346) puzzled me. They should be—Length 5" (instead of 6"), wing 3" 1''. I suspect he measured from a badly stuffed skin. I have now obtained *small races* of the following allied species of this family:—*H. capitalis*, *H. capensis*, *Plo-*

ceus capensis, *P. oryx*, and *Estrelda astrild*; and I have little doubt others have similar small representatives.

412. FRINGILLARIA IMPETUANI. Common at Nels Poort. Eggs white, spotted in a ring with obscure ill-defined cloudy blotches and pinpoint-dots of purplish brown. Axis 7''' ; diam. 5½'''.

415. FRINGILLARIA TAHAPISI. Found at Colesberg by Mr. Ortlepp.

447. COLIUS ERYTHROPUS. Does not breed in holes, but makes a cup-shaped nest, as do the other two South-African species. My son has sent in the eggs of *C. striatus* in some plenty. Many of them are curiously streaked with a dull golden yellow. The ground-colour of all is a dirty chalky-white, rough to the touch.

540. EUPODOTIS CRISTATA. Last (but certainly not least) I have the pleasure to announce the acquisition to the South-African Museum stores (wherein are deposited all the specimens above described) of a magnificent egg of this noble Bustard. This was received from Mr. Jackson. It is of a pale fawn-coloured ground (with a tinge of green about it), unevenly spotted and blotched with various-sized and -shaped brown and faint purple markings, chiefly at the obtuse end. Axis 3'' 4''' ; diam. 2'' 5'''.

My friend Mrs. Barber takes exception to the statement (B. S. Afr. p. 252) that the eggs of parasitic birds usually resemble those of the foster parent. She writes that "the eggs of all the Cuckoos that I have met with in this country are white, and moreover they are nearly always larger than the eggs of the bird in whose nest they are deposited. With regard to distinguishing eggs, birds of all kinds are exceedingly short-sighted. We used to amuse ourselves by changing the eggs in all the birds' nests that we knew of. The owners seldom left them, but took to the strange eggs; and unless their habits were remarkably different, they would blindly rear each other's young, just as they do the young Cuckoos. It is not necessary, therefore, for nature to make this provision. My second son once filled a Cape Canary's nest with so many eggs, that when the young were hatched, they were more than the poor birds could manage to provide for; and, having repented of his mischief, he was

obliged to help them to bring up their young." This strikes me as being a good hint for those who are rearing valuable birds.

I have to chronicle the arrival of another bird within South-African limits. At the end of last month I visited Robbin Island, in the mouth of Table Bay, and for the first time saw a lovely little Tern, which I refer to *STERNULA BALENARUM*, Strickl. (Contr. Orn. 1852, p. 160), already received through Mr. Andersson, from Walvisch Bay. Out of the four specimens seen, we obtained three. Yesterday, while returning from the mail-steamer, I again saw this diminutive Tern sitting on the anchor-buoys in the roadstead.

A strange mistake has crept into my 'Catalogue,' owing to the disjointed manner in which it was written, and to the wrong identification of a species. Another bird has been mistaken for *Laniarius icterus* (no. 324). A real example of this noble Bush-Shrike has been sent by Mr. H. Bowker from the forests of Kwelegha, near Kingwilliams-town. He writes :—" They are common in some parts, and make a curious noise, something like the word 'mope,' drawn out into a long, low whistle. I have some doubts in asserting that the bird calls day and night, as I think there are two species of them. They are known among the Dutch farmers by the name of 'Spoke-vogel' (*i. e.* ghost-bird); and the low call of the bird during the night certainly would lead a person inclined to superstition to think that there was something supernatural in it."

This is the first time this species has been found in South Africa. Swainson's bird, figured (badly by the way) in the 'Birds of West Africa' (vol. ii. p. 137, pl. 22), was from West Africa; and the original of Le Vaillant's much better figure came from Senegal. The description, and so forth, in my 'Catalogue' should be referred to the previous species, *L. rubiginosus*.

Here I must close for the present, but at some future time shall send you another budget. I trust I may have succeeded in awakening an interest in our South-African birds in some of your readers, and that the information I send may not be unacceptable to them.

Yours very truly,

E. L. LAYARD.

P.S. In 'The Ibis' for 1866, Mr. Blyth says (p. 354):—"There must surely be some mistake about *Picus macii* occurring in Ceylon." I felt certain that I never got it; so I referred to the 'Birds of India' to see what Dr. Jerdon could have said about it. To my surprise I found (vol. i. p. 273) "and (according to Layard) to Ceylon." Now I included it only on Dr. Kelaart's authority (Ann. & Mag. N. H. 2nd ser. xiii. p. 448), adding "*sed non vidi*." The Doctor and I did not always agree about our identifications. I sent all my birds to Mr. Blyth, as I did not trust my own judgment. I fear many of Dr. Kelaart's species are wrongly named, but I do not wish to have his errors fathered on me.

SIR,—I have two remarks to make on Captain Beavan's "Notes on various Indian Birds" ('Ibis,' 1867, pp. 430-455).

407. *Garrulax leucolophus*. The true Himalayan race is common in Arakan; but that found on the banks of the Salween is *G. belangeri*, Lesson, with the back wholly rufous, and the white of the breast extending down the middle portion of the abdominal region. I never saw an intermediate specimen. *G. bicolor*, Lesson, of Sumatra, is equally albescent, as must also be *G. diardi*, Lesson (*G. leucogaster*, Walden, P. Z. S., 1866, p. 549; 'Ibis,' 1867, pp. 381, 382), of Siam and Cochin China. I also obtained *G. chinensis* (Scop.), in company with *G. belangeri*, in Upper Martaban.

461. *Pycnonotus pygæus*. Should not this rather range as *P. cafer* (L.)? See Mr. Layard's remarks in his 'Birds of South Africa' (pp. 139, 140). *Brachypodius melanocephalus*, marked by Capt. Beavan with a note of doubt, is common in Burma.

The only addition to the avifauna of India, of which I know at present, is the common Bean-Goose (*Anas segetum*). Mr. Gould possesses the skin of one procured in the Dukhun.

I am, &c.,

E. BLYTH.

8 January 1868.

SIR,—It may be worth recording that the example of Pel's Owl (*Scotopelia peli*, Bp.), which was described and figured from the life in 'The Ibis' for 1859 (pp. 445-448, pl. xv.), died on the 30th October, 1867, having been in excellent health till within a few days previously. On dissection it proved to be a female, and showed no traces of morbid character, except some of cerebral congestion. The skin and sternum of this specimen have been preserved for the Norwich Museum.

I am, yours &c.,

J. H. GURNEY.

London, Feb. 8th, 1868.

SIR,—On looking over the last number of 'The Ibis,' I have been brought up by Mr. Swinhoe's *Ægithaliscus anophrys* (p. 64). If you will be good enough to refer to Part vii. of my 'Birds of Asia,' published in 1855, you will find this bird figured and described by me as *Psaltia concinna*, from a specimen (at that time the only one I had seen) in Mr. Eyton's collection, procured at Chusan. I then remarked that the species is most nearly allied to *P. erythrocephala*, but that it "differs from that bird in its smaller size, in the paler colour of the crown, in the absence of the post-superciliary stripe, in the black of the throat being entirely surrounded with white, and in the richer rusty-red of the flanks." I have since received other specimens from China. I am, &c.,

JOHN GOULD.

Abyssinian Field-force, Annesley Bay,

March 4th, 1868.

SIR,—I send you a line just to let you know how I am getting on; but it will be a short one, as the post leaves to-morrow, and I am in the midst of the bustle of landing myself, goods and chattels. I have as yet been unable to do much. The country round I have twice visited since my arrival on the 24th February. The first trip proved unlucky, as we got caught by a gale of wind in the ship's boat, and were nearly being either starved or drowned. The specimens I had procured were all destroyed by the water in the boat, and my guns were nearly as

bad. On the 29th I went about a dozen miles up the country. I have as yet only procured a Kite, a Buzzard, a Kestrel, and a Dove with a very long tail; and these with the utmost ingenuity will not make up material for a despatch; but you may rest assured that I will send you one as soon as I can.

I am, &c., W. JESSE.

SIR,—A mistake has crept into the notice of Mr. Lawrence's *Heliomaster spectabilis* in the last number of 'The Ibis' (*suprà*, p. 115). I have a male specimen obtained by Arcé in Costa Rica, which cannot be specifically separated from the *Eugenes fulgens* of Mexico and Guatemala. It is therefore not only possible, but more than probable, that *H. spectabilis* is identical with *E. fulgens*, the only difference being the greater length of the bill in the former.

I have, &c.,

OSBERT SALVIN.

Mr. Bartlett, the able and obliging superintendent of the Zoological Gardens, has been kind enough to inform us that for some weeks past a cock *Apteryx mantelli* in the menagerie has been (*more Ratitarum*) industriously incubating two eggs laid by his mate, the old hen sent to England in 1850 (!) by the then Governor of New Zealand. The proverb forbids our counting our chickens before they are hatched; but we may in this case not unreasonably look forward to some produce, for it can hardly be that this exemplary husband should give himself so much trouble unless he had good ground for expecting a satisfactory result; and we trust that the aged captive, his wife, may see her old age surrounded by a flourishing family of young Kiwis.

The extensive collection of the late Prince Maximilian of Wied is, we understand, for sale. We are informed that it contains about 4000 specimens of 2358 species of birds, besides a large number of other *Vertebrata*. It has been valued by Professor Troschel of Bonn at £2000, and the widow of his late Highness is very desirous of meeting with a purchaser who will take the whole collection.

In our last number we made (p. 112) the mistake of confounding the editor of the 'Archives Cosmologiques' with his father, M. CHARLES F. DUBOIS, the author of 'Planches Coloriées des Oiseaux de la Belgique,' and a companion work on the remaining European species not observed in Belgium. The error is the more serious, as we regret having to announce the death of this gentleman, which took place on the 12th of November last. But this, unfortunately, is not the greatest loss to Ornithologists we have to record: our friend Mr. CHARLES JOHN ANDERSSON, who we had hoped would have shortly been in a position to publish the work on the Ornithology of South-western Africa, in behalf of which we some time ago endeavoured to excite the support of our readers, died in the month of July last, in Damara Land, whither he had returned to carry on anew the researches necessary for his intended task. As an ardent follower of our science and an accurate observer, this gentleman had few equals; and his early death, hastened, in all probability, by the hardships and disasters which his zeal for discovery had prompted him to undergo, leaves a blank not likely to be soon filled. We have further to lament the death, on the 14th of March, of another friend, M. EDOUARD VERREAUX, of Paris, in his younger days also an African explorer, but for many years widely known and respected as the head of a commercial firm from which ornithologists in all lands have received large benefits. Indeed the "Maison Verreaux," under the able superintendence of its late chief and his brother, had justly attained a reputation far beyond that of any establishment of the like kind in any country. Finally we have to mention the recent decease, at a very advanced age, of the agreeable author of the 'Gleanings in Natural History,' and many other similar works—Mr. EDWARD JESSE. Though this gentleman, it may be said, had no claim to a place among scientific zoologists, yet the attractive character of his writings, especially to the young, has probably been the means of turning the attention of many persons to the study of Natural History; and accordingly his death should not pass unnoticed here.

THE IBIS.

NEW SERIES.

No. XV. JULY 1868.

XXI.—Notes on Mr. Layard's '*Birds of South Africa*.'

By J. H. GURNEY, F.Z.S.

(Plate VIII.)

[Concluded from p. 164.]

NUMIDA CORONATA, G. R. Gray. Crowned Guinea-fowl.

In 1844 Mr. G. R. Gray (List B. Br. Mus. iii. p. 29) gave this name to a South-African Guinea-fowl, which differs from the true *Numida mitrata* (No. 519 of Mr. Layard's catalogue) in the markings of the neck and wings, and more conspicuously in the shape of the casque, which is broad throughout instead of being narrowed to a point at the upper end as in *N. mitrata*. Mr. Layard does not include *N. coronata* in his catalogue; but Mr. Gray has recently informed me that a further comparison of specimens has confirmed his view as to its specific distinctness, and I have recently received an example of it from Natal*.

539. STRUTHIO AUSTRALIS, nob. Southern Ostrich.

Mr. Layard, in his notice of the South-African Ostrich, remarks that it "is now recognized as distinct from the North-African bird, to which probably the name of '*camelus*' was originally given." The name *Struthio camelus* was given by

* [This species is not recognized by Mr. Selater in his list of the genus (P. Z. S. 1863, pp. 125, 126), and does not appear to have been described. —Ed.]

Linnæus to the Ostrich of Syria and Arabia, with which the Ostrich of North Africa is supposed to be identical; but I believe that the South-African Ostrich has as yet received no specific name; and as this is inconvenient, I would suggest that it should bear that of "*australis*," which I have here applied to it.

The distinction between the Ostriches of North and South Africa, and also between the eggs of the two, has been pointed out by Mr. P. L. Selater in his paper on the Struthious birds in the Zoological Gardens (Trans. Zool. Soc. iv. p. 35-4), to which I refer my readers for further information on this subject.

550. *ÆDICNEMUS MACULOSUS*, Temm. Spotted Thicknee.

ÆDICNEMUS SENEGALENSIS, Swains. Senegal Thicknee.

Mr. Layard, though he refers to the latter of these two birds (p. 288, note), does not give it a place in his Catalogue; it is nevertheless, like its congener, a regular migrant to the colony of Natal, where, according to the observations of Mr. Ayres (*Ibis*, 1860, p. 217, and 1865, p. 270), both species appear on the coast in the month of June. I am also informed by this gentleman that he has met with *Æ. maculosus* in the Transvaal.

Some remarks on the special affinity of *Æ. senegalensis* to the genus *Æsacus* will be found in the passage last referred to.

555. *GLAREOLA NORDMANNI*, Fischer. Black-winged Pratincole. (Plate VIII.)

Under the head of *Ciconia alba* (p. 314) Mr. Layard quotes a communication from Mrs. Barber, in which that lady refers to the breeding-places of the "Small Locust-bird," the name given, Mr. Layard tells us, by the colonists to this species. It is therefore to be hoped that he will be able to obtain from his correspondent some further particulars as to its nidification, and will favour the readers of 'The Ibis' with such information as he may acquire on the subject.

As this species has not hitherto been satisfactorily figured*,

* [The figures illustrating the original description of this bird (Bull. Soc. Imp. Nat. Moscou, xv. (1842) tab. ii.) only show the more important details. M. Gerbe (Orn. Eur. ii. p. 112) thinks it may be represented

the accompanying representation of it by Mr. Wolf will not be unacceptable to ornithologists. The drawing is taken from a Natal specimen belonging to the Museum at King's Lynn.

GLAREOLA PRATINCOLA (Linn.). Collared Pratincole.

This species is not included in Mr. Layard's Catalogue; but a single example of it was transmitted to me from Natal by Mr. Ayres, as previously recorded in this Journal (1863, p. 329).

558. HOPLOPTERUS ARMATUS, Jard. & Selby. Black-and-white Spur-wing Plover.

559. HOPLOPTERUS ALBICEPS (Temm.).

Charadrius albiceps of Temminck and Laugier (Pl. Col. 526) is identical with *Hoplopterus armatus* of Jardine and Selby (Ill. Orn. pl. 54), and therefore distinct from *Vanellus albiceps* Gould (P. Z. S. 1834, p. 45), (*Lobivanellus albiceps*, Strickl. P. Z. S. 1841, p. 33; *Sarciophorus albiceps*, Fraser, Zool. Typ. pl. 64), with which Mr. Layard has identified it.

567. ÆGIALITES HIATICULA (Linn.). Common Ringed Plover.

ÆGIALITES INTERMEDIUS (Ménétriés). Intermediate Ringed Plover.

I am desirous of calling attention to a note in 'The Ibis' for 1865 (p. 465, note), from which it seems that the Ringed Plover from Natal, recorded by me (Ibis, 1860, p. 218) under the name of *Ægialites hiaticula*, agrees with the peculiar race which seems to have been first observed in England by Mr. G. D. Rowley, who met with it near Brighton (Ibis, 1860, p. 101), and which is believed to be identical with that to which Ménétriés assigned the specific name of *intermedius*.

575. BALEARICA REGULORUM (Licht.). Southern Crowned Crane.

by Werner (Atl. Ois. d'Eur.), though under the name of *G. torquata* (sc. *pratincola*). It has recently been figured, but on a very small scale, by Dr. Fritsch (Vög. Eur. tab. 33. figs. 9, 10) as *G. pallasi*. We have been unable to find the plate mentioned by Dr. Bree (B. Eur. iv. pp. 1, 3), who does not himself figure it, as having been given by Pallas.—ED.]

Mr. Ayres met with a single nest of this species during a journey from Natal to Potchefstroom, performed in the month of December, which, he says, was of a conical form, built in a swamp, and placed in about the same depth of water as the nests of the Crested Coot (*Fulica cristata*), which it also resembled in the rushes that had been chosen as materials for its construction. Mr. Ayres adds that he thinks the nest was begun in shallower water, and added to as the season advanced and the water increased in depth. Mr. Tristram informs me that an egg taken from this nest and sent to him by Mr. Ayres, is white, with a green lining-membrane, that its texture is glossy, and its size about that of the egg of a Goose.

576. ARDEA GOLIATH, Temm. Goliath Heron.

This fine Heron is a regular inhabitant of the bays and mouths of rivers in Natal, and is recorded as such by Mr. Ayres (*Ibis*, 1860, p. 220).

581. ARDEA BUBULCUS, Sav. Buff-backed Heron.

This species is an inhabitant of the colony of Natal, as recorded by Mr. Ayres (*Ibis*, 1863, p. 330); and I have received it thence both in breeding and in non-breeding plumage. Mr. Ayres informs me that he has also met with it in the Transvaal.

590. ARDETTA STURMI (Wagl.). Sturm's Heron.

Mr. G. R. Gray informs me that, on comparing the type-specimen (which he considers to be somewhat immature) of Sir Andrew Smith's *Cancrophagus gutturalis* (Rep. Exp. C. Afr. p. 57) with a West-African specimen of Wagler's *Ardea sturmi* (Syst. Av. fol. 12, p. 14. sp. 37) in the British Museum, he has arrived at the same conclusion as that adopted by Mr. Layard, namely, that the two are specifically identical. This being the case, Sir Andrew's name, which was published in 1836, must give way to that bestowed by Wagler in 1827.

A specimen of this rare Heron, sent to me by Mr. Ayres from Natal, was recorded in 'The Ibis' (1860, p. 221).

592. NYCTICORAX GRISEUS (Linn.). European Night-Heron.

The European Night-Heron has been sent to me from Natal,

as recorded in 'The Ibis' (1865, p. 272); and Mr. Ayres has also met with it in the Transvaal.

Two of these birds, which were confined in an enclosure in the gardens of the Zoological Society of London, having been imperfectly pinioned, became able, after a time, to fly tolerably, but did not desert the gardens and the adjacent park, where they have roamed at pleasure for the last two years; they have, however, acquired a bad character at the gardens for frequently devouring newly hatched chickens. One of these individuals, which I observed walking leisurely along the slender upper bar of an iron railing, some three yards in length, preserved his balance most perfectly, keeping his body nearly parallel to the horizontal iron bar, and not in any way resorting to the aid of his wings.

594. *PLATALEA TENUIROSTRIS*, Temm.* Slender-billed Spoonbill.

It is stated by Vierthaler (Naumannia, 1857, p. 110) that this Spoonbill breeds on the White Nile near Chartum, building on trees and laying greenish-white eggs. Mr. Ayres has met with this species in the Transvaal as well as in Natal.

597. *SPHENORHYNCHUS ABDIMI* (Licht.). Abdim's Stork.

The Sennaar travellers, Vierthaler and Brehm, met with this Stork breeding in that country in the month of June.

The journal of the former (Naumannia, 1856, p. 75), under the date of 12 June, records the following note:—"The road to Belled Kerreri leads along the bank of the Nile, and is tolerably rich in trees. This large village extends for about half a league along the left bank, consisting of 'toguls' of straw &c., which are mostly adorned with one or more Ostrich's eggs. Augustus climbed some mimosas to examine the nests of *Ciconia abdimi*,

* [*P. alba* and *P. cristata*, Scopoli (Faun. et Fl. Insubr. ii. p. 92), and *P. tenuirostris*, Temminck (Man. d'Orn. i. p. ciii, and ii. p. 594), having been established on the "*Spatule blanche*" and "*Spatule loupée*" of Sommerat (Voy. N. Guin. pls. 51, 52), which, as Prof. Schlegel remarks (Mus. P.-B., *Ciconie*, p. 22), were doubtless obtained in Africa, and not in the Philippine Islands, there can be no hesitation as to one of the first mentioned names having the priority. The name "*P. luzoniensis*, Scopoli," seems to be an invention of Bonaparte's (Consp. Av. ii. p. 148.)—ED.]

in spite of the objections of the natives. These nests stand either singly or several together on one tree; they are proportionately of insignificant size, and contained from three to four bluish-white, fine-grained, and beautifully shaped oval eggs, which were still unhatched."

Dr. A. Brehm's journal (*Journ. für Orn.* 1856, pp. 412, 413) refers, under the same date, to this Stork in the following terms:—"This bird, especially seeking the presence of men, confidently perches on the tops of those peculiar, round, wedge-shaped straw huts of the interior of Africa, adorned with eggs of the Ostrich, and here called 'tokahl;' the dweller in the hut rejoices in these 'birds of blessing,' as he calls them, and protects them from foreign disturbance; in fact he offers the same perfect hospitality to every bird which establishes its nest near his dwelling. In the Storks' nests the chattering host of House-Sparrows build their nests; on the lower bushes, at hardly man's height, are seen many old nests of Turtledoves.

"I sent my servant Aali, in spite of his opposition, up the trees to fetch me down eggs of the Storks. He brought me many, three or four from each nest. The eggs are rather large, 24" to 30" long, round, and bluish-white; when they are blown they appear almost pure white. The Arabs raised a cry of murder, that we disturbed their holy birds, 'Simbere,' and invoked the curse and punishment of heaven upon Aali and me, which brought him quite to rage and despair.

"Of all the nests examined (about twenty in number) only six were occupied; on the other nests the birds were still building. Many trees were bedecked with several nests."

Dr. von Heuglin (*Ibis*, 1861, p. 70) describes this Stork as frequenting the plains of Sennaar after the grass has been burnt, in quest of "half-roasted grasshoppers;" and Sir Samuel Baker informs me that it is to this species that reference is made in the following extract from his recent '*Nile Tributaries of Abyssinia*' (2nd ed. pp. 547, 548).

"During the march over a portion of the country which had been cleared by burning we met a remarkably curious hunting-party. A number of the common black and white Storks were hunting for grasshoppers and other insects, but mounted on the

back of each Stork was a large copper-coloured Flycatcher, which, perched like a rider on his horse, kept a bright look-out for insects, which from its elevated position it could easily discover upon the ground. I watched them for some time : whenever the Storks perceived a grasshopper or other winged insect, they chased them on foot, but if they missed their game the Flycatchers darted from their backs and flew after the insects like Falcons, catching them in their beaks and then returning to their steeds to look out for another opportunity."

I also learn from Sir Samuel that a similar scene was subsequently witnessed by Dr. von Heuglin ; and he further informs me that the "copper-coloured Flycatcher" mentioned in the above passage is a long-tailed bird, nearly as large as a Magpie—a description which perhaps agrees with *Lamprotornis eytoni* (Fraser), the Abyssinian representative, according to Dr. Hartlaub (J. f. O. 1859, pp. 9–11), of the western *L. anea* (Gmel.), no. 336 of Mr. Layard's work.

599. *LEPTOPTILUS CRUMENIFERUS* (Cuv.). African Marabu.

Mr. Ayres informs me that he has observed in the Transvaal a bird which, from his account, I believe to be of this species ; but the fact of its being so not having as yet been ascertained with precision, I merely mention the circumstance as indicative of a locality where such a bird exists, and with the view of drawing the attention of South-African naturalists to its more precise identification.

604. *IBIS ÆTHIOPICA* (Lath.). Sacred Ibis.

I cannot agree with Mr. Layard in referring the Sacred Ibis to the genus *Geronticus*, from which it appears to me to be very distinct. It surely must have been the intention of the founder of the genus *Ibis* to retain within it the only species to which the name, as a common name, was properly applicable, the species which was an object of reverence among the old Egyptians. Since Savigny's time there has been no doubt what that species was ; and therefore I should be inclined to consider the guardian bird of this Journal the type of the genus *Ibis*, under the name above given.

This species occurs in Natal as a winter visitor, as recorded in 'The Ibis' (1865, p. 275); and Mr. Ayres informs me that he has also met with it in the Transvaal.

According to the accounts given by Vierthaler, who met with it on the White Nile, it there builds on mimosa trees, nesting in great companies during the months of August, September, and October (Naumannia, 1853, p. 22). On the Blue Nile it was also numerous, building on trees standing in the middle of the water (*op. cit.* 1857, p. 107).

605. GERONTICUS HAGEDASH (Lath.). Hagedash Ibis.

The observations of Mr. Ayres on the nidification and other habits of this species in Natal are recorded in 'The Ibis' (1865, p. 274). It was also met with in Sennaar by Dr. A. Brehm, who gives (Journ. für Orn. 1858, p. 330) the following lively accounts of its habits of roosting as observed in that country:—"Towards evening he [this species] begins to think of his night quarters, single trees standing close to the river or on islands. Here he meets his Sacred cousin, the 'Insatiable' [*Tantalus ibis*?], the Marabu, the Spoonbill, one or other of the Pelicans, and similar company; frequently also a flock of monkeys, with whom he then vies in roaring till a late hour of the night. A monkey will sometimes amuse himself by trying to catch the Ibis by his tuft or by otherwise annoying him; then, indeed, he can be heard roar! He rises, shrieks as if he were spitted, circles round the tree several times, and again sweeps back to his place, when the monkey is perhaps mischievous enough once more to disturb his bedfellow, and the old row begins afresh, although the patriarch of the monkey-horde has several times, with his deep gurgling tones, admonished the offenders to keep the peace."

620. TRINGA CANUTUS, Linn. Knot.

The most southerly examples of this bird which have come under my notice were two which were obtained in Walvisch Bay by my late lamented friend Mr. C. J. Andersson, on 20th October and 4th November, 1863. The first of these specimens retained some remains of the breeding-plumage, the second scarcely any.

GALLINAGO MAJOR (Gmel.). Solitary Snipe.

This Snipe, though not included in Mr. Layard's catalogue, is a regular migrant to Natal, where it arrives in September and October, and leaves in January or February, as before mentioned in this Journal (1861, p. 134). Mr. Ayres has also met with it in the Transvaal, but informs me that it is less frequent in its occurrence there than it is in Natal.

624. GALLINAGO ÆQUATORIALIS, Rüpp. Black-quilled Snipe.

Mr. G. R. Gray informs me that, after a comparison of specimens in the British Museum, he agrees with Mr. Layard in considering *Gallinago nigripennis* of Bonaparte to be identical with *G. æquatorialis* of Rüppell.

I have included this species under the former name in two of my lists of the birds of Natal (Ibis, 1864, p. 355, and 1868, p. 51).

631. RALLUS AQUATICUS, Linn. Water-Rail.

It may be worth while mentioning that I have seen this species from Damara Land as well as from Natal.

ORTYGOMETRA PYGMÆA (Vieill.). Baillon's Crane.

This species, which is not included in Mr. Layard's catalogue, inhabits the colony of Natal, as recorded by Mr. Ayres (Ibis, 1865, p. 273). The late Mr. Andersson also met with it in Damara Land, where he found its nest "repeatedly" (*cf.* Proc. Zool. Soc. 1864, p. 7).

636. CORETHRURA RUFICOLLIS (J. E. Gray). Jardine's Crane.

This species is found in Natal, as recorded in 'The Ibis' for 1859 (p. 249); and I am informed by Mr. Ayres that it also occurs in the Transvaal.

643. FULICA CRISTATA, Gmel. Crested Coot.

Mr. Ayres, in travelling from Natal to Potchefstroom in the month of December, found this Coot breeding so abundantly on the larger lagoons that he and his companion collected six hundred of its eggs in a single day. Most of the nests contained from three to five eggs each.

651. *CASARCA CANA* (Gmel.). South-African Shell-duck.

There can be no doubt that this species is quite distinct from the more northern *Casarca rutila*, with which Mr. Layard identifies it, as witness Mr. G. R. Gray (Gen. B. App. p. 27), Mr. P. L. Selater (Proc. Zool. Soc. 1864, p. 190), and Prof. Schlegel (Mus. des Pays-Bas, *Anseres*, p. 67).

657. *QUERQUEDULA HOTTENTOTTA*, A. Smith. Hottentot Teal.

This bird inhabits the colony of Natal (Ibis, 1862, p. 154).

686. *STERNA CANTIACA*, Gmel. Sandwich Tern.

In European specimens of this Tern there does not appear to be any difference of coloration between the sexes, when in the same state of plumage, unless perhaps that the male in the breeding-season has more of a roseate blush on the breast than the female. The male bird described by Mr. Layard appears to be in the breeding dress, and the female in winter plumage.

687. *STERNA VELOX*, Rüpp. Swift Tern.688. *STERNA GALERICULATA*, Licht. Crested Tern.

Mr. G. R. Gray informs me that he is not satisfied of the identity (as assumed by Mr. Layard) of the *Sterna bergi* of Lichtenstein with the *velox* of Rüppell, and is disposed rather to identify the former with *S. galericulata* (*S. cristata*, Swains.).

Mr. Layard says that *Sterna galericulata* "may easily be distinguished" from *S. velox* "by the black of the head being continued down to the bill," whereas the latter "has a broad white forehead." Dr. Hartlaub, on the contrary (Orn. Westafr. p. 254) describes *S. galericulata* as "fronte et vertice albis." This discrepancy leads me to suppose that this species is subject to a seasonal change similar to that to which I have alluded in the case of *S. cantiaca*.

STERNA MACRURA, Naum. Arctic Tern.689. *STERNA BRACHYPUS*, Swains.

Mr. G. R. Gray informs me that the British Museum contains a Tern from the Cape of Good Hope which agrees with Swainson's description of *Sterna brachypus*, but that the latter does

not appear to differ from European specimens of *S. macrura*, of which it may therefore be considered a synonym.

STERNA FLUVIATILIS, Naum. Common Tern.

The British Museum possesses two Terns from the Cape of Good Hope which appear to belong to this species rather than to its closely allied intertropical representative, *Sterna senegalensis*, Swains. Mr. G. R. Gray informs me that one of these specimens was sent over by Mr. Layard under the name of *Sterna brachypus*, Swains.

692. PODICEPS NIGRICOLLIS (Gmel.) ? Eared Grebe ?

It is now pretty generally admitted that the *Podiceps auritus* of Linnæus is the species which has been more commonly known as *P. cornutus*, while the *P. auritus* of authors is the *P. nigricollis* of Gmelin. The only South-African example of this Grebe which has come under my notice is a female in breeding-plumage, which was obtained in the Transvaal by Mr. Ayres, by whom it was sent to the Rev. H. B. Tristram, together with its eggs.

This bird differs from specimens of *Podiceps nigricollis* obtained in various localities north of the tropics in the paler colour of its ear-tufts, as well as in its smaller dimensions, and especially in its shorter bill. Mr. Tristram informs me that its eggs are also smaller than the average size of the eggs of more northern specimens, though not smaller than some exceptional examples of the latter which are contained in his collection.

The following Table will show the disparity in size between the specimen sent from the Transvaal and three others from different localities with which it has been compared :—

		Wing from carpal joint.	Tarsus.	Bill from gape.
No. 1.	From Algeria	5·3125 in.	1·75 in.	1·25 in.
„ 2.	„ Galilee	5·25	1·75	1·25
„ 3.	„ Holland	4·75	1·62	1·25
„ 4.	„ Transvaal ..	4·75	1·5	1

It will be interesting to ascertain, by a comparison of additional South-African specimens, whether these smaller dimensions are constant amongst them, and also whether they are common to both sexes.

Mr. Ayres writes that in the Transvaal this Grebe "breeds in December, in most of the shallow lagoons, in from two to three feet of water, amongst the rushes. The nests, which float on the water, are formed of a mass of rushes built in a conical form, about a foot in diameter and two or three inches out of the water. On leaving the nest, the old bird always carefully covers the eggs with rushes; and any person unacquainted with this habit would pass the nest as an unsightly heap of rotten weed. The eggs, from three to five in number, are frequently much discoloured from being half immersed in water; but this does not appear in any way to injure them or to prevent them from hatching in the usual way. The young birds are beautiful little downy creatures, striped brown and black on the back, and white and black on the chin and throat, their bodies being pure white."

700. *GRACULUS AFRICANUS* (Gmel.). Long-tailed Cormorant.

This Cormorant inhabits the freshwater lagoons on the coast of Natal, as has been recorded in 'The Ibis' (1862, p. 154); and Mr. Ayres has also met with it in the Transvaal.

701. *PELECANUS ONOCROTALUS*, Linn.

702. *PELECANUS RUFESCENS*, Lath.

Mr. Blyth has pointed out (Ibis, 1867, p. 178) that the name *onocrotalus* has been assigned by different writers to two distinct species of Pelican—the one with a long occipital crest and a peculiar tumid appearance of the feathers of the forehead, the other wanting these characters. On the other hand, Mr. P. L. Selater, in a recent communication to the Zoological Society (14th May, 1868), appears to consider these two forms merely different ages of the same species. As living birds of both are now in the Society's Gardens, it may be hoped that the matter will soon be settled.

The crested form appears to be that which Mr. Layard includes under the name *P. onocrotalus*; and it is also that which I formerly called *P. mitratus*, Licht. (Ibis, 1861, p. 135), which name, in Mr. Selater's opinion, is more probably a synonym of *P. minor*, Rüpp., a species, so far as I know, not yet obtained in South Africa.

In either case, I think Mr. Layard in error in citing *P. minor* and *P. mitratus* as synonyms respectively of *P. onocrotalus* and *P. rufescens*, which latter belongs to a different section of the genus; and I may add that it appears very doubtful whether *P. philippensis*, which he also quotes as identical with *P. rufescens*, really is so; but on this point I would refer to Mr. Blyth's remarks above mentioned.

98. HALCYON CYANOLEUCA, Vieill. Angola Kingfisher.

I am indebted to Mr. R. B. Sharpe (who, being engaged on a monograph of the *Alcedinidæ*, has paid great attention to the birds of this family) for the correction of an error, which did not reach me in time for notice of it to be taken in its proper place. In my "Seventh additional List of Birds from Natal" I mentioned a Kingfisher from the Monocusi River under the name of *Halcyon senegalensis*; and this species has in consequence been included in Mr. Layard's Catalogue. This bird, on closer examination, proves to belong to the allied but more southern species *H. cyanoleuca* of Vieillot (N. Diet. vol. xix. p. 401), the distinctive characters of which have been well pointed out by Dr. Hartlaub (Orn. Westafr. p. 31); and to them I would refer my readers in preference to repeating the descriptions he has there supplied.

In conclusion, I cannot but express the hope that Mr. Layard's volume will give a permanent impetus to the study of South-African ornithology, especially on the spot—a result which naturalists in this country will, I am persuaded, be anxious to promote, either by reference to specimens preserved in the museums of Great Britain, or by contributing in any other way they may be able towards the identification of South-African species and to the elucidation of their synonymy where it still remains doubtful or obscure.

. [Additional Notes on Mr. Layard's '*Birds of South Africa*.'

It seems advisable to draw attention to the fact (since Mr. Gurney has not noticed it) that Mr. Layard, though professedly confining himself to notices of those species which are

said to occur south of the twenty-eighth parallel of latitude, has included several which appear to have been only met with north of that line. So far as we can judge, they were all found by Sir Andrew Smith during his exploring expedition in the years 1834-6; and most of them were originally described by him in the appendix to the "Report of the Expedition for Exploring Central Africa from the Cape of Good Hope, &c. Cape Town: 1836" (8vo, pp. 68), a tract which has now become very rare*. Our readers will therefore probably not object to our placing before them a list of these species, to the names of which we prefix Mr. Layard's numbers; and though some of them have been received by him from a higher latitude than any mentioned by Sir Andrew, yet in no single case has any of these species been thereby brought within the prescribed limits. It is only necessary to observe that the latitude of Kuruman is about 27° 28', that of Latakoo 27° 1', and of Kurrichaine 25° 42'.

181. AEDON PAENA; *Erythropygia paena*, A. Smith, Rep. p. 46.
Between Latakoo and the tropic (Smith); Kuruman (Layard).

236†. TURDUS LIBONYANA; *Merula libonyana*, A. Smith.
Rep. p. 45.

About and beyond Kurrichaine (Smith). "I have never seen a specimen from any part of the colony, or as far north as my friends have penetrated" (Layard).

239. TURDUS OBSCURUS; *Merula obscura*, A. Smith, Rep. p. 45.

Towards the sources of the Orange River (Smith); Kuruman (Layard).

249. BESSORNIS HUMERALIS, A. Smith, Rep. p. 46.

Banks of the Marikwa, and found from lat. 26° S. to the Tropic (Smith); Kuruman (Layard).

251. CRATEROPUS JARDINII, A. Smith, Rep. p. 45.

Beyond Kurrichaine (Smith); Kuruman (Layard)‡.

* We only know of two copies: one is in the library of the Colonial Office, the second in that of the Zoological Society.

† "336" Layard *errore*.

‡ Mr. Gurney tells us that he has just received this species from Natal.

313. PRIONOPS TALACOMA, A. Smith, Rep. p. 45.

Between Latakoo and the Tropic (Smith).

318. EURYCEPHALUS ANGUITIMENS, A. Smith, Rep. p. 52.

Between Latakoo and the Tropic (Smith); "I have not seen it from any locality further south than Damaraland" (Layard)!

322. LANIARIUS SIMILIS; *Malaconotus similis*, A. Smith, Rep. p. 44.

Beyond Kurrichaine (Smith).

354. TEXTOR NIGER; *Bubalornis niger*, A. Smith, Rep. p. 52 (1836); *Textor erythrorhynchus*, Id. Ill. Zool. S. Afr. ii. pl. 64. About Kurrichaine (Smith).

362. HYPHANTORNIS TAHATALI; *Ploceus tahatali*, A. Smith, Rep. p. 50.

Between the Orange River and the Tropic (Smith).

367. PLOCEUS TAHA; *Euplectes taha*, A. Smith, Rep. p. 50; *Ploceus dubius*, Id. loc. cit., fide Bonap. et Layard.

North and east of Kurrichaine (Smith); "does not extend south of 26°" (Layard)! I take this opportunity of observing that it seems to me rather questionable if Bonaparte and Mr. Layard are right in regarding *Ploceus dubius* as *P. taha* in young or non-breeding plumage. Sir Andrew Smith was told by the natives that the latter built amongst reeds, the former upon trees.

370. PLOCEUS (?) LATHAMI; *Loxia lathami*, A. Smith, Rep. p. 51.

Near and beyond Kurrichaine (Smith).

372. PLOCEPASSER MAHALI, A. Smith, Rep. p. 51.

Between the Orange River and the Tropic (Smith); Kuruman (Layard).

389. ESTRElda ERYTHRONOTA; *E. lipiniana*, A. Smith, Rep. p. 49.

North and east of Kurrichaine (Smith).

393. ESTRELLA SQUAMIFRONS, A. Smith, Rep. p. 49.

But rarely seen to the southward of Latakoo (Smith); Kuru-man and Damaraland (Layard).

406. PASSER MOTITENSIS; *Pyrgita motitensis*, A. Smith, Rep. p. 50.

About Old Latakoo (Smith, *loc. cit.*); sixty miles north of the Orange River (*Id.* Ill. Zool. S. Afr. ii. text to pl. 114).

414. FRINGILLARIA (?) AFRICANA; *Zonotrichia africana*, A. Smith, Rep. p. 48.

Both north and south of Kurrichaine (Smith).

420. PYRRHULAUDA LEUCOTIS; *Fringilla otoleucus*, Temm., A. Smith, Rep. p. 49.

Immediately beyond Kurrichaine (Smith).

429. MEGALOPHONUS SABOTA; *Miraфра sabota*, A. Smith, Rep. p. 47.

Between Latakoo and the Tropic (Smith).

452. SCHIZÆRHIS CONCOLOR; *Corythaix* and *Corythaixoides* (!) *concolor*, A. Smith, S. Afr. Quart. Journ. 2nd ser. p. 48 (Nov. 1833); *Coliphimus concolor*, *Id.* Rep. p. 54.

The locality given by Sir Andrew in the original description of this species (*ut supr. cit.*) is of the vaguest kind possible, being merely "South Africa, inland of Port Natal"; but on his exploring expedition he became aware of its true habitat, which he states is "the country from Kurrichaine to the Tropic." Mr. Layard says he has "only seen it as yet from Damaraland."

469. TRACHYPHONUS CAFER (Gmel.); *T. vaillanti*, Ranz.; *Polysticta quopopa*, A. Smith, Rep. p. 54.

From Kurrichaine to the Tropic (Smith); Mosilikatzi's country (Layard *vide* Verreaux).

524. FRANCOLINUS SWAINSONI; *Perdix swainsoni*, A. Smith, Rep. p. 54.

Beyond Kurrichaine (Smith, *loc. cit.*); immediately south of Kurrichaine (*Id.* Ill. Zool. S. Afr. ii. text to pl. 12).

528. *FRANCOLINUS SEPHAENA*; *Perdix sephaena*, A. Smith, Rep. p. 55 (1836); *F. pileatus*, *Id.* Ill. Zool. S. Afr. ii. text to pl. 14.

Banks of the Marikwa and Limpopo Rivers, north of Kurrichaine (Smith).

537. *PTEROCLES GUTTURALIS*, A. Smith, Rep. p. 56.

North and south of Kurrichaine (Smith, *loc. cit.*), about eighty miles east of Latakoo (*Id.* Ill. Zool. S. Afr. text to pl. 3).

538. *PTEROCLES VARIEGATUS*, Burch., A. Smith, Rep. p. 56.

Between Latakoo and the Tropic (Smith).

546. *EUPODOTIS RUFICRISTA*; *Otis ruficrista*, A. Smith, Rep. p. 56.

Between Latakoo and the Tropic (Smith). "Does not occur in the colony" (Layard)!

We are far from complaining that Mr. Layard has included notices of these species, and perhaps a few more, in his work. It seems in every way probable that some of them will in time be recognized as stragglers to within the line he has drawn, and in that character have a far better claim to his attention than several species known to be from Madagascar, India, or even still more distant countries, which he has admitted merely because they have been assigned to the Cape Colony by Le Vaillant and other questionable authorities. Yet, to be consistent, Mr. Layard, we conceive, should also have inserted in his useful work some half-dozen more species also observed by Sir Andrew Smith during the expedition aforesaid; for they have, as it appears to us, equal claim to the privilege. These are:—

(1) *Falco semitorquatus*, A. Smith, Rep. p. 44.

Old Latakoo.

(2) *Malaconotus australis*, A. Smith, Rep. p. 44.

North of Kurrichaine.

(3) *Merula litsitsirupa*, A. Smith, Rep. p. 45.

Between the Orange River and Tropic.

(4) *Alauda chuana*, A. Smith, Rep. p. 46.

Beyond Latakoo.

(5) *Cinnyris talatala*, A. Smith, Rep. p. 53.

Between the Orange River and Kurrichaine.

(6) *Chrysophilus bennetti*, A. Smith, Rep. p. 53.

About and beyond Kurrichaine.

—together, perhaps, with *Chrysophilus abingoni*, A. Smith (Rep. p. 53), from the same locality as the last, though it is considered by Prof. Sundevall (Consp. Av. Picin. p. 64) to be identical with the southern form of *Dendromus chrysurus*, Sw., *Campethera chrysura*, no. 474 of Mr. Layard's work.

Equally scarce with Sir Andrew Smith's 'Report' above noticed is the 'South African Quarterly Journal;' and as this Magazine contains many important papers by him, a few words respecting it may not be amiss here. We have not been able to find a complete copy of it anywhere, though we have made every effort to do so. That in the library of the Zoological Society is the most perfect to which we have had access; but in it Nos. I. and V. of the first series, and No. 2. part 2 of the second are missing. The first, second, and third numbers, however, are contained in the library of the Linnean Society, and the first and fourth in that of the Colonial Office; but the rest we have been unable to meet with. As the dates at which the various numbers and parts of this 'Journal' were published are of some consequence, owing to the numerous species therein described, while they are not given accurately in any bibliographical work with which we are acquainted*, we think that the following brief particulars may not be without interest to our readers.

* The Catalogue of scientific papers recently published by the Royal Society omits all notice of this Journal, though, besides Sir Andrew Smith's zoological papers, it contains original articles by Sir John Herschel, Dr. Whewell, and other men of science.

"South African Quarterly Journal. Capetown: 1830."

No. I.	From Oct. 1829 to Jan. 1830...	pp. 1-104*	Linn. Soc.†	Col. Off.
No. II.	" Jan. to April 1830.....	pp. 105-224*	Linn. Soc.†	Zool. Soc.
No. II.	" April to July 1830	pp. 225-344*	Linn. Soc.†	Zool. Soc.
No. IV.	" July to September 1830 .	pp. 345-464*	Col. Off.‡	Zool. Soc.

No. V. §	—————	{ Fresh pagination. } *	—————
		{ Contents on fly-leaf of Z. S. copy }	

"Vol. II. September 1835."

Sec. Ser.	No. 1. part 1.	Oct. to Dec. 1833.....	pp. 1-32	} Zool. Soc.
"	"	2.	pp. 33-64*	
"	"	3.	pp. 65-96	
"	No. 2. part 1.	Jan. to March 1834...	pp. 97-128	} Zool. Soc.
"	"	2.	pp. 161-192	
"	"	3.	pp. 193-224	
"	No. 3. part 1.	April to June 1834...	pp. 225-256*	} Zool. Soc.
"	"	2.	pp. 257-288*	
"	"	3.	pp. 289-320*	
"	No. 4. part 1.	July to Sept. 1834 ...	pp. 321-352	} Zool. Soc.
"	"	2.	pp. 353-388	
"	"	3. September 1835		

In conclusion, without criticising Mr. Layard's work so strongly as a contemporary has lately done, we must express an earnest hope that, should it attain a second edition, its author will pay much closer attention to the bibliography of his subject. There is undoubtedly room for very much improvement in this respect, and we are greatly mistaken if such improvement will not be highly appreciated by ornithologists.—ED.]

XXII.—*Notes on Birds breeding in the Neighbourhood of Sydney.*

By EDWARD P. RAMSAY, C.M.Z.S.

[Continued from 'The Ibis' for 1865, p. 306¶.]

15. MONARCHA TRIVIRGATA (Temm.); Gould, Handb. B. Austral. i. p. 263.

The nest and eggs of this very interesting species were forwarded to me in 1865 from South Grafton, by the late Mr. J.

* Contains a paper on birds by Sir A. Smith. † In wrappers.

‡ Wanting sheet "3 E."

§ Published in 1831, as appears from Ill. Zool. S. Afr. text to pl. 57.

|| Contains a paper on birds by M. Jules Verreaux.

¶ [See also 'Ibis' 1867, pp. 413-421.—ED.]

MacGillivray, who procured them from one of the neighbouring brushes. Mr. MacGillivray also sent me a skin of one of the parent birds, proving that this rare species is to be found much nearer Sydney than was expected; for, until specimens had been received at the Australian Museum from Mr. Rainbird, who had procured them at Port Denison (*cf.* Ibis, 1865, p. 85), *Monarcha trivirgata* was looked upon as a bird of the greatest rarity.

The nest is very similar, and similarly situated, to that of *M. carinata*, but differs in being smaller and composed of finer material; in length it is 3·5 inches, by 2·5 in diameter at the thickest part, and 1·25 in. deep. In this instance the nest was placed in the upright fork of a small tree, about 6 feet from the ground, and is composed of very fine fibrous roots, long strings of green moss (*Hypnum*, sp.?), shreds of bark, and soft silky down from the seed-pods of some of the native trees. The whole is closely interwoven and made into a neat cup-shaped structure, lined solely with fine black hair-like roots; the edges and parts of the outside are ornamented with a beautiful green *Hypnum* and white cobwebs. Upon the whole the nest and eggs bear a close resemblance to those of *M. carinata*; but, unlike all I have ever seen of this latter species, the nest of *M. trivirgata* is not so entirely enveloped in green moss. The eggs, I believe, were only two in number; they are in length ·833 in., by ·583 in breadth, having a pure white ground thickly sprinkled with dots of bright reddish-brown crowded upon the thicker end, where they form a blotch approaching more to salmon-colour.

I have heard of no specimens of this species being found nearer Sydney than at Grafton, although *Monarcha carinata* is at times by no means rare with us.

16. *PARDALOTUS PUNCTATUS*, Temm.; Gould, Handb. B. Austral. i. p. 157.

The Spotted Pardalote or Diamond-bird is common in all parts of New South Wales, and plentifully dispersed over the whole of the eastern and southern portions of the continent. It may be found in the neighbourhood of Sydney throughout the whole year, and during the winter months associates in

small troops with its ally *Pardalotus affinis*, after the arrival of that migrating species in April and May.

Both species betake themselves to the leafy boughs of the *Eucalypti*, showing preference for the tops of the smaller trees and saplings. In such places they procure the chief part of their food, which consists of a kind of manna that exudes from the torn edges of the leaves, the *larvæ* of various minute *Lepidoptera*, and spiders, the webs of which are not unfrequently found twisted into small hard loose rings encircling their legs; these rings of cobweb are found more often upon *P. affinis* and *P. melanocephalus* than upon the present species. Some individuals prefer wearing two rings on the same leg, others have one on each. Although numerous specimens (chiefly of *P. melanocephalus*) which have been in the Australian Museum for years, as well as several in our own collection at Dobroyde, have these rings on the tarsi, the fact does not appear to have attracted notice until quite lately.

The Spotted Diamond-bird, like the Black-headed species (*P. melanocephalus*), digs a small narrow burrow in the side of a bank or mound of earth; the end of this it enlarges into a spherical chamber of about four inches in diameter, which it lines all round, but more thickly at the bottom, with fine strips of stringy bark, or, in the absence of this material, with grass. When the earth is carefully removed and the nest taken out, it is found to be a very loose hollow ball, slightly interwoven and having a small round entrance in the side, which is, of course, built opposite to the end of the burrow. Sometimes a small hole in a log of wood is chosen; a crevice in an old wall, a niche under a shelving rock, or the banks of water-holes or creeks, all are alike resorted to; still I have never known the Spotted Pardalote to breed in the hollow branch of a tree, or take possession of the nests of a Fairy Martin (*Lagenoplastes ariel*) as *P. affinis* and *P. striatus** are wont to do.

The eggs of *Pardalotus punctatus* are four in number, of a beautiful pearly-white after being emptied, but pinkish before,

* In 'Ibis,' 1866, page 126, line 8 from bottom, for *P. punctatus* read *P. striatus*.

rather roundish, being in length .6 in., by .5 in breadth. The breeding-season, which commences sometimes as early as July, lasts until the end of December, during which time three broods are often raised.

The Spotted Diamond-bird has only three cries, all distinct enough and easily imitated. The first is a double piping cry resembling "pee pee," "pee pee,"—the first part of it repeated in a high note, the second in the next lower note to it. The second is its call-note, uttered chiefly when the bird is perched on some high bough; it consists of the first part of the first double note, and then it drops suddenly into the last of the second part and ends it abruptly, like "pee-pweet"; this it continues for a considerable time. Its last cry is a very low mournful "pee-e-e," uttered chiefly when anything disturbs or approaches its nest. These are the only three calls I have ever heard the bird make. They answer freely to either of the first two (which are much used by collectors when procuring specimens), and when whistled to will come down from the highest trees.

No species falls a prey to the bird-killing youths more easily than this pretty Diamond-bird. Their tameness and fearlessness, especially during the breeding-season, surpasses that of any other land-bird with which I am acquainted. They are frequently knocked down with a hat or cap, either held in the hand or thrown at them as they hop along to the end of the twigs of some small bush; catching them when they enter their nests is another mode of destruction, which is sometimes resorted to to obtain perfect specimens for skinning. The young, which get their living with their first plumage, are not unfrequently taken, but seldom live in confinement more than a few months.

What is doubtless the same pair of birds will come to the same bank year after year to build, but always dig fresh holes.

In October 1863 a pair took possession of a heap of white sand which had been left for a few days by the side of a plant-frame in Dobroyde garden, quite close to the house; and in spite of the sand falling in upon them several times they succeeded in digging a hole upwards of two feet in length, when, unfortunately, the sand was removed. Although people were passing constantly to and fro, and the gardener busy with his plants

at the time, the birds did not seem in the slightest degree alarmed, but continued with their labours as if the sand had been placed there for their especial benefit. The male in this case did most of the work; but the female frequently assisted him. The burrows are scarcely two inches in diameter, being only just large enough to admit the owner when stooping, and look not unlike the entrance of a mouse-hole; they are by no means always straight, but twist and turn from side to side according to the nature of the soil; their length varies from ten to thirty inches.

17. *HIRUNDO FRONTALIS*, Quoy and Gaim.; Gould, Handb. B. Austral. i. p. 107.

Although the present species is strictly migratory, yet it is no easy task to determine the exact date of its arrival or departure, owing to the number of stragglers which remain with us during the whole of the year.

I believe, however, that the visitants arrive early in July, or perhaps late in June, and leave us again in the end of January and February. After their arrival, and again just before their departure, they may be seen in great numbers flying to and fro over the fields, and often skimming the water-holes and lagoons, but keeping very high, sometimes almost out of sight, during the middle of the day.

I have frequently observed them, in company with the Fairy Martin (*Lagenoplastes ariel*) flying over the lawn of the inner domain in Sydney. Tree-Swallows (*Hylochelidon nigricans*) also accompany this species in search of food. We met with all three species mixed up in one immense flock, during December 1864, at Lake Bathurst; here they were following in our wake as we walked through the rushes on a small island, obtaining a rich feast on the small *Libellulæ* which flew up in countless numbers at every step we took. The pupa-cases of these insects were lying piled up between the rushes to the height of two, and even three feet, while the edges of the island at dusk were alive with the pupæ crawling out of the water.

The proper breeding-season of *Hirundo frontalis* is during the months of August and throughout to the end of December;

stragglers, however, may be found breeding almost at any time. I have found them building in the Dobroyde stables, both in the months of February and June; and on April 17th, 1864, I took a nest with fresh eggs from the same buildings.

In choosing a site for the nest they seem to be less particular than in their time for breeding. Almost any building will serve them where they can obtain a horizontal beam or ledge. On this they place their round bowl-shaped nest, the wall of which is composed of pellets of mud, mingled with grass, and securely fastened on the beam. As soon as the mudwork is dry, it is warmly lined with grasses, horsehair, or feathers; and the nest is then ready for the eggs, which are usually from three to five in number, $\cdot 75$ in. in length, by $\cdot 5$ in breadth. The ground-colour is of a delicate white, having numerous dots and freckles of yellowish-brown and faint lilac sprinkled over the whole surface, but more thickly at the larger end. The nests are 4 to 6 inches wide, by $2\cdot 5$ inches deep.

Sometimes a band of this species and the Fairy Martin* will take possession of the upper story of some deserted house, the latter building their long flask-shaped nests in clusters under the eaves, while the former enter at the windows and take possession of the cross beams and rafters. I have seen both species breeding under the same roof at the Glebe, Sydney.

In 1858, while fishing off a small steamer, which, having been out of use for some months, was moored a few hundred yards from the north shore, in the Sydney harbour, I observed a pair of these Swallows fly round the boat, and frequently dive underneath the paddle-box. After a long search I discovered their nest, which was composed of black pitchy mud, lined with seaweed and feathers. It was placed upon one of the horizontal beams of the paddle-box, and contained three young ones, about half fledged. The man in charge informed me that the nest had been made when the steamer was lying lower down the harbour, and upon its being tugged to where it then lay the birds flew round and round it the whole time, evidently in a great state of excitement.

* [*Cf.* Ibis, 1865, pp. 299, 300, and correction, Ibis, 1866, p. 127.—*Ed.*]

Several pairs have for some time past taken possession of an old bathing-house at Dobroyde, where every year they build on the lower beams, within a few inches of high-water mark : these nests are always composed of black pitchy mud, mixed with seaweed, obtained, I have no doubt, from the flats at low tide ; the lining consists of soft dry pieces of bleached seaweed.

18. *CISTICOLA RUFICEPS*, Gould, Handb. B. Austral. i. p. 353.

I have before me at present the eggs of two, if not three, species of *Cisticola*, all taken from nests placed in like situations, among the reeds, small plants, and weeds growing upon the edges of swampy places.

The nests, as well as the eggs, of all closely resemble each other, being small cup-shaped structures, partly slung to, and partly supported by, the twigs of the bushes, or upright reeds, among which they were found. In form they are not unlike those of *Zosterops cærulescens*, but take slightly after those of *Acrocephalus australis*, though they are by no means so bulky. They are composed of fine grasses and woolly substances cemented with cobwebs and spiders' nests, and are about 2 inches wide, by 1·5 in. deep. The eggs in nearly every instance were three in number ; but one nest contained four. The ground-colour is a delicate pale blue, dotted, spotted, or blotched with brownish-red of various tints and shades. Their length is from ·5 in. to ·65, by from ·4 to ·5 in breadth.

I found *Cisticola ruficeps* abundant upon the Hunter River, on Ash Island and also upon Long Island, and in the reed-beds in the neighbourhood of Hexham. This is a very lively and interesting species, and differs remarkably in its habits from what one would naturally expect in a grass- and reed-frequenting bird. It may often be seen floating high in the air, almost out of sight, and singing sweetly in a lively and pleasing strain, although of short duration, but continued at intervals of about a quarter of a minute.

From my note-book I take the following remarks, made during one of my last trips to the Hunter River :—

“ Ash Island, 21st Dec. 1865.—Hearing more *Cisticole*

singing in the lucerne-fields, I started with the gun in search of them, and found one perched upon the fence, which I shot, and afterwards followed another, which seemed to be about two hundred yards off, among the lucerne, but, failing to put it up, was somewhat perplexed at still hearing it singing, apparently close to me; at last, happening to look towards the sky, I observed a minute speck high up in the air over my head, soaring with outspread wings, floating something after the style of the *Mirafra horsfieldi*, and singing all the time. I could hardly believe it was a *Cisticola* at all, but was delighted to see it descend, falling, with its wings spread, a few feet at a time, then poising itself and chirping, letting itself down in this way until it settled on a post in the lucerne a few yards from where I stood, and then began to call in its usual note, an almost indescribable sound, but easily imitated by drawing the air in through your lips."

I succeeded in calling another down in a similar manner, and shot it also, and felt much delighted with my morning's work, formerly believing the *Cisticolæ* to be strictly reed- or grass-frequenter birds, and of feeble flight.

Some of their notes while flying high closely resemble, as I have said, those of *Mirafra horsfieldi*. When they alight in a bed of grass or rushes they make their way through them with surprising quickness, procuring their food, which consists principally of seeds, chiefly on the ground, but occasionally ascending to the tops of the reeds, more, however, to call, I believe, than to obtain food. Several which settled in the lucerne had made their way, without showing themselves once, for a very considerable distance before I could force them to rise; and I was then obliged in most cases to fire at them when on the wing.

They are more easily procured when met with in the reeds, as by imitating their notes the males will mount to the top of the highest stems and show themselves at once.

I am still in doubt as to the differences of the sexes in plumage: all I obtained were similar; but those which I was wont to consider females were unfortunately shot in the abdomen, which prevented my ascertaining the sex with certainty.

I may mention, however, that of two skins forwarded from South Australia to the Australian Museum at Sydney, one, said to be of the female, differs from that of the male in having the head, especially the back part of it, striated with black; in every other respect the plumage is the same as in those males which I have myself dissected. I did not meet with any other species, during my visit to the Hunter, than *Cisticola ruficeps*.

The legs are of a light fleshy-brown; claws lighter; irides light brown; inside of the mouth fleshy-brown, darker on the roof and sides of lower mandible; tip of the tongue blackish; lower mandible fleshy-brown, upper brownish, with the culmen and sides of the nostrils blackish. The eggs of *C. ruficeps* are three in number, of a pale blue, spotted largely with brownish-red, .5 in. in length, by .4 in width.

19. EXCALFACTORIA AUSTRALIS, Gould, Handb. B. Austral. ii. p. 197.

The Little Swamp-Quail is found tolerably abundant in the marshy parts about Botany Bay and Southhead, in which situations it breeds freely, rearing often three broods in the season. It usually lays five eggs, in shape resembling those of *Synæcus australis*, but much smaller in size, being 1.1 in. in length, by .8 in breadth, and when fresh of a pale light green colour, dotted all over with blackish umber; in some the ground-colour is a dirty olive-yellow; others, again, are almost brown, with black dots. This species is known by our Sydney sportsmen under the name of the "King Quail," and is by most people considered a rare bird; but if its natural haunts be visited it will be found plentiful enough, although hard to "raise." It shows preference for the long tall grass in low damp situations, particularly bordering swamps and lagoons. I have received the eggs from various localities, as far inland as Lake Bathurst, from the Hunter River, and also from Sydney, or rather the Botany, swamps. They breed readily in confinement; last year I saw a pair in the possession of Mr. Palmer, naturalist, of Sydney, which had been laying for several months, and had just at that time succeeded in hatching four young from a set of five eggs.

The nest is like that of the rest of the family, a few pieces of grass, upon which the eggs are laid, but on the whole greatly depending on the nature of the ground.

The breeding-season lasts from August to January; but in confinement they will lay almost at any time of the year.

The young upon leaving the shell are of a dusky hue, almost black.

XXIII.—*Note on Cichladusa arquata and C. guttata.*

By Dr. M. T. VON HEUGLIN*.

(Plate IX.)

AMONGST the rich natural-history collections brought by Professor Peters from the east coast of Africa, there was a bird which has been described by its discoverer under the name of *Cichladusa arquata*. A little later the same bird was described by Dr. Hartlaub as *Bradyornis spekii*, from a specimen collected by Capt. Speke at Kazeh. Apparently congeneric is a smaller species from the White Nile, observed by me between lat. 5° and lat. 7° N.

Prof. Peters characterizes his genus *Cichladusa* as follows:—"The wing- and tail-feathers, as well as the caligated tarsi, are as in the genus *Bessonornis*, from which, however, it differs in its stronger beak, the stiff suberected feathers of the forehead, and the rounded nostrils." A generic separation seems to be necessary. From *Bradyornis* it differs in its lively manners. *Bradyornis* is a slow, indolent, songless, Muscicapine form, somewhat allied to *Ruticilla*, and to the very aberrant *Saxicola rufocinerea*, Rüpp.

I add full descriptions of both species.

1. *CICHLADUSA ARQUATA*, Peters, Monatsber. K. Akad. Wissensch. Berlin, 16 March 1863; Journ. für Orn. 1864, p. 352. *Bradyornis spekii*, Hartl., Proc. Zool. Soc. 1863, p. 105; Selat. Proc. Zool. Soc. 1864, p. 108, No. 6. "Morning Warbler," Speke, *loc. cit.* (Plate IX. fig. 1.)

* [Kindly communicated by Dr. Hartlaub.—ED.]

Supra ex olivaceo rufescens; capitis et colli lateribus subcinerascens; alis, uropygio et cauda cinnamomeo-rufis; subalaribus dilute fulvis; remigibus majoribus dimidio apicali pogonii interni oblique fusco-nigricantibus, ex parte albido marginatis; tertiariis rufescenti-fuliginosis, obsoletius rufo marginatis; tectricibus alæ dorso concoloribus, pallide rufo marginatis; plumis pollicis pogonio interno fuliginosis, externo rufis; subtus ex olivaceo isabellino-fulva, pectore et hypochondriis cinereo lavatis; gula fulvescenti-albida, rufescente lavata, fascia e maculis nigricantibus composita et utrinque ad angulum oris prolongata circumdata; subcaudalibus fulvo-ochraceis; rostro et pedibus nigricantibus; iride straminea. Long. tot. circa 7" 9", rostr. a fr. 8", al. 3" 6", tars. 1", caud. 3" 8".

Observed by Professor Peters near Sena, and by Speke at Kazeh. On high trees near the margin of the woods. Said to be a very fine songster.

2. CICHLADUSA GUTTATA. *Crateropus guttatus*, Heuglin, Syst. Uebers. Vög. N.-O. Afr., Sitzungsber. K. Akad. Wien, xix. p. 282, No. 287; Hartl. Orn. W. Afr. p. 272; Heugl. Journ. für Orn. 1863, p. 300; Peters, *op. cit.* 1864, p. 353. (Plate IX. fig. 2.)

♂ Minor, supra cinnamomea, pileo cinereo lavato; subtus albida rufescente induta; ciliis, stria obsoleta superciliari genisque albidis; stria transoculari et regione parotica obsolete fumosis, hac albido striolata; frontis plumis rigidiusculis, valde angustatis, scapis nitidis fuscescentibus; colli et pectoris lateribus maculis rotundatis conspicuis nigro-fuliginosis squamatim notatis; hypochondriis eodem colore obsoletius striolatis; subalaribus et tibiis ex rufo fuscescentibus, albido variis; remige primo ex hepatico rufo, reliquis basi hepatico-rufis, apicem versus fuliginosis; ex parte rufo marginatis; rectricibus cinnamomeo-rufis, apicem versus fuliginoso lavatis; rostro nigro; iride scarlatina; pedibus plumbeo-fuscis. Long. tot. 6½", rostr. a fr. 6½", al. 3", caud. 3", tars. 1½–12".

♀ Vix minor, a mare diversa: pileo pure ferrugineo, non ut in mare cinerascens lavato.

Tail moderately rounded. The first tail-feather 5" or 6" shorter than the two middle ones. The tail-feathers and the tertials show faint traces of transverse bands.

Lives in pairs near the banks of the White Nile, on low shrubs and high trees. Flutters Thrush-like from branch to branch. The song is very sweet and variable. The food consists of insects and worms. My birds were collected in the months of February and March; and I do not know whether *C. guttata* is resident or not.

XXIV.—*Ornithological Notes from the Ethiopian Region.* By ROWLAND M. SPERLING, Acting-Commander, H.M.S. 'Racoon.'

THE following notes were taken during the months of October, November, and December 1867, when the 'Racoon' went from Simon's Bay, Cape of Good Hope, to Zanzibar and back, touching at some intermediate places. The exhaustive catalogue which my friend Mr. Layard has recently published on the birds of South Africa is so complete that I have not here noticed many birds that came under my observation, as it would only have been going twice over the same ground; and I have furthermore availed myself of his knowledge of the avifauna of this country to request him to verify the specimens that I brought back, a task which he has kindly performed.

We started from the Cape on the 7th of October. Standing out of False Bay, before the last puffs of a north-westerly wind, its usual ornithological features were presented. Small flocks of Gannets hovered over the shoals of fish that frequent these waters, occasionally making perpendicular swoops on their prey. A few Penguins, with nothing but their quaint grey heads visible, uttered their melancholy whistle and sank like phantoms as we glided by, while immense flocks of Shags were flying in triangular-shaped flocks from Cape Point, to which extremity they always retire in northerly winds. We had not lost sight of Cape Hangklip when every breath of air left us, and for two days we lay on the Agullas bank, "as idle as a painted ship upon a painted ocean"—a most unusual occurrence to happen off the Stormy Cape. However, I availed myself of the calm

to pull about in a boat and secure specimens of the various pelagic birds that visited us. I found the mouths and throats of *Thalassidroma melanogaster* full of a dull ruddy spawn, which floated on the surface of the sea all round us in large blood-red patches. I ascribe to it the phosphoric glare of the water, which, on still, dark nights, makes these seas so luminous; and I should also fancy that in the daytime its appearance would very likely give rise to the numerous reports of fancied shoals that are constantly being brought to the Cape, and which on investigation are invariably found to be false. On the 9th of October a strong westerly wind sprang up, which, in a few days, blew us along the southern extremity of the African continent into lat. 32° S. and long. 43° E.; during the whole of the distance we were accompanied by large numbers of Cape-Pigeons and Black-bellied Petrels, sometimes as many as fifty of each species being in sight at one time, while we also saw every day three or four specimens of the Wandering, Common, and Black Albatros, as well as the large Black Petrel. We were now approaching the south end of Madagascar and the Mozambic channel; and on the 19th, when we had arrived at the 27th parallel of south latitude, all the Albatroses and Petrels left us, the little *T. melanogaster* penetrating a few miles further to the northward than the others. I did not, however, see a single *Procellaria æquinotialis*; and I only can account for this by supposing that they had all gone to the south to breed. On my voyage from England, it was in this latitude that I first noticed the Albatros and the large Petrel, and when returning from Zanzibar I again fell in with them within sixty miles of the same place; from these facts, confirmed by the answers made to inquiries of other sailors, I am led to infer that this is their extreme northern range.

These pelagic birds appear to be influenced by the instinct of migration, which seems to control, in a greater or less degree, the motions of nearly all birds; for *Procellaria capensis* retires entirely from Cape latitudes for breeding-purposes between the months of November and March, while *P. æquinotialis* must start a month before that period and return somewhat earlier. *P. glacialis* I only look on as an accidental

visitor as far north as this; it probably inhabits the Antarctic regions.

I am of opinion that, at present, our list of the *Procellariidæ* of these parts is imperfect, from having, on one or two occasions, seen birds that I could not refer to any known species; but having been unable to procure specimens, it is useless to trouble the readers of 'The Ibis' with vague surmises: I can only trust that in future voyages I may be more successful. There is, however, some difficulty in this, as all these birds seem to prefer the vicinity of a ship in strong winds, when it would be impossible to lower a boat; and it is only from a careful search of the small barren and uninhabited oceanic islands that we must expect to increase our list of these birds.

From the 19th, until we neared Europa Island, no birds were observed; but on approaching that spot several Terns, which I took to be *Sterna brachypus*, flew about the ship. I had been looking forward anxiously to a visit to Europa, as it is totally uninhabited, and has never, to my knowledge, been visited by any one save Admiral Sir Henry Keppel and Captains Speke and Grant, who only stayed there a few hours. In this, however, I was disappointed; for a strong wind sprang up and raised such a sea that landing would have been impossible; so we steered clear of it, and I hoped for better luck on my return. Lying, as the island does, in the middle of the Mozambique channel, it would be interesting to know whether it is indebted to Africa or Madagascar for its avifauna*. It abounds in Turtle and a species of Plover, probably *Dromas ardeola*; and Speke says that there were land-birds on it. Its low sandy soil is covered with thick scrub, and it is believed that there is no water to be found. Its dimensions are five miles by three; and the nearest land, distant about one hundred and sixty-five miles, is Murderers' Bay in Madagascar. While passing through the Mozambique channel I

[* On none of the numerous islands studded through these seas visited by me, when cruising in H.M.S. 'Castor,' was any species of land-bird discovered, not even a Swallow. Sea-fowls and Waders are of so cosmopolite a character that they afford few or no data on which to found a theory of the geographical distribution of species.—E. L. LAYARD.]

was struck by the absence of all birds of passage ; beyond a Heron and a Bee-eater, I observed none.

On the 2nd of November we lay, becalmed, by the gigantic volcano of Comoro, where we caught several fish of various species, amongst others a most voracious shark, ten feet in length, which, previously to his capture, had actually attacked a boat in the water, shaking the rudder violently in his teeth ; but the poor beast had an excuse for this, as I found on dissection that his stomach contained nothing but a fragment of a woollen stocking which had been thrown overboard in the morning.

On the 6th we anchored at Zanzibar ; the channel between that island and the mainland was covered with large flocks of Terns, which, I believe, make their headquarters on Latham Island.

Owing to the intense heat and various engagements, I was unable to shoot much ; and the dense stupidity of an Arab, whom I paid to collect birds for me, frustrated my other attempts to procure specimens. However, through the kindness of the political agent and Dr. Kirk, I was not so badly off as I might have been.

On the 9th we left Zanzibar, intending to go to Johanna, and, if possible, to visit Latham Island on the way ; but neither attempt was successful. Latham Island is a low coral-bank about ten feet high ; it is only 400 feet long, by 200 broad ; and it lies at least twenty miles from the nearest land. It is reputed to be covered with sea-birds ; but I was unable to ascertain whether this was the case, as, notwithstanding our steaming at full speed, the current ran so strong that we only reached it in time to see a white bank silvered by the moon's rays, studded here and there with jagged lumps of coral, while the sun had just bid us adieu over the low African hills on our right. We then tried Johanna, as I wanted Tendrees, Guinea-fowls, and so forth ; but, after trying for some days to beat in a light wind against the whole force of the strong equatorial current, I bore up in disgust for Moçambic, where I anchored on the 16th of November.

The harbour of Moçambic is surrounded by sandy flats extending, in some places, two miles from the shore ; they form a

congenial feeding-ground for hundreds of Flamingos, Curlews, Plovers, and other waders, some of which are always on them. The shores are low, covered with cocoa-nut palms, and brambles, and *how* sandy can only be known to the wretched "human" who drags a twelve-bore gun and his weary limbs over the hot yielding surface.

Latterly, however, I did not scruple to avail myself of slave-labour to the extent of making four cheerful negroes carry me about in a luxurious shaded "marsheela," the palanquin of these parts, while I shot birds from under the awning.

We left Mozambique after a stay of about ten days, and on the 2nd of December arrived off the Kongoni mouth of the Zambesi river. Here we found Mr. Young and Mr. Faulkner, together with the rest of the Livingstone-Search Expedition, and took them to Simon's Bay. When rounding the Cape, on our return, not a single Cape Pigeon was visible; so they were evidently off to their unknown breeding-grounds.

By this mail I have forwarded to my friend Mr. Dresser some eggs of the Sooty Tern (*Sterna fuliginosa*); and, although these birds are not included in the East-African list, it may not be out of place for me to give here a brief description of their breeding-place at the island of Ascension*.

On the 8th of last June I was literally cast on shore on that island; for the periodical rollers were dashing against the coast, and my boat was upset in the surf; so giving myself a good shake, as the only available means of drying my clothes, I started for "Wide-awake Fair," the name which the blue-jackets who have visited the place have considered an appropriate one to designate the spot where the birds gather for nesting-purposes. Leaving Comfortless Cove about the middle of the day, I walked over two dreary miles of cinders and ashes, uncheered by a symptom of vegetation, before I noticed flocks of Terns converging from various parts of the ocean to a spot apparently about a mile in front of me; but as yet I observed nothing of

* [It may be necessary to observe that our contributor's account of Ascension and "Wide-awake Fair" was written in ignorance that the subject had been lately treated in a cotemporary (Zoologist, s. s. pp. 979-984).—ED.].

the "fair:" at length, on turning slightly to the left and surmounting a low ridge, the whole scene was disclosed.

A gradual incline of a quarter of a mile terminated in a plain of ten or fifteen acres in extent, which was literally covered with the birds. The plain was surrounded by low mountains, except on the side on which we stood; and being entirely sheltered from the wind, its heat under the full blaze of a tropical sun was very oppressive. No description can give an adequate idea of the effect produced by the thousands upon thousands of these wild sea-birds floating and screaming over this arid cinder-bed, the eggs and young scattered so thickly on the ground that in some instances it was impossible to avoid crushing them, and the bleached bones of dead birds distributed in all directions. During our short walk down the incline, large flocks of parent birds hovered over our heads, and assailed us with plaintive cries, regardless of our sticks, with which we might have killed any number of them; but their beautifully pure dark and white plumage and graceful motions caused it to appear almost a sin to knock any of them down. On arriving within the precincts of the breeding-grounds their numbers increased; large flocks were arriving in endless succession from seaward; clouds of birds rose from the ground, and, joining those already attending us, their wheelings and gyrations almost made us giddy. I sat down on a lump of cinder, and the society, being at length convinced that my policy was not aggressive, went on with the ordinary routine of incubation.

There were young of all sizes, from the little callow ones just hatched to the nearly fledged birds that fluttered and crawled like young pigeons; there were also lots of eggs exposed on the bare ground; but in most instances the old bird sat on its solitary treasure, hissing defiance as I approached, and fighting manfully if I attempted to remove it. The young are of a very light sooty colour both above and beneath, the ends of most of the feathers having a white spot the size of a pea, which gives them a speckled appearance. The whole of the "fair," both in smell and in appearance, reminds one of the effect produced by a sudden entry into a large pigeon-house.

In the interstices of the scoriæ and lava round this nursery

lurk numbers of wild cats (not *Felis catus*, but the domestic breed run wild) ; and the bones of both old and young birds tell the tale of the ravages they commit.

I was surprised to learn that all the Terns leave Ascension as soon as the young can fly ; but, from the shortness of my stay, I was unable to ascertain the precise times of their arrival and departure. I should, however, judge, by the appearance of the young at the time of my visit, that they would all be ready to start by the end of July. Whither do they go ?

There are, as far as I could learn, no other birds indigenous to the island, save a Swallow ; but Pheasants, Partridges, and Guinea-fowls have been turned down on the top of Green Mountain, the only green spot on Ascension, though whether these are our Partridge and Pheasant, or some species of Francolin, I did not ascertain ; probably the latter.

1. *ELANUS CÆRULEUS* (Desfont.).

Two young birds, captured in the island, were given to me at Zanzibar ; they were very tractable and tame, and I kept them for some time. Mr. Layard remarks (B. S. Afr. p. 27), "It is migratory, appearing about Cape Town in the month of May. I have never heard of its nesting in this country. To a certain extent this species is gregarious."

2. *MEROPS SUPERCILIOSUS*, Linn.

When at sea in the Mozambic Channel I heard one evening the chattering of Bee-eaters, and saw two sitting in the pendant loop of a small rope outside my port, evidently roosting for the night ; after some trouble I captured the male. I could not make up my mind for some time to what species this bird belonged ; and after puzzling over it for some days, and not being able to reconcile it with Swainson's *M. savignii*, I came to the conclusion that it was *M. superciliosus*, Linn., which he named from Brisson's description of a Madagascar specimen, and that *M. savignii* was either a distinct species or a strongly-marked variety, belonging more to the West Coast of Africa, where Swainson procured his specimens*.

* [Herr O. Finsch, to whose remarks on the subject we have before referred, (*suprà*, p. 155, note), thinks that *Merops superciliosus*, *M. ægyptius*, and *M. savignii* are but the same species in different stages of plumage.—ED.]

The principal differences between two examples, on comparison, are as follows :—

♂. <i>Merops savignii</i> :—	in.	♂. <i>Merops superciliosus</i> :—	in.
Length of wing.....	5·5	Length of wing.....	6·8
Length of bill	1·4	Length of bill	1·5
Projection of middle tail- feathers	1·9	Projection of middle tail- feathers	2·9
Top of head, neck, and back uni- form parrot-green.		Top of head dark metallic-green, and when looked at in the sun pure chestnut.	
Front of head white, slightly tinged with yellow close to the nostrils, and with light blue where it blends with the green of the crown; over each eye light turquoise-blue.		Front of head dirty white, ex- tending, in a band of the same colour, over each eye.	
Beneath and parallel to the usual black eye-stripe another blue stripe extends as far as the black on the ears.		Beneath the black eye-stripe a pure white one extends as far as the black one on the ears.	

3. MEROPS SAVIGNII, Swains.

Pretty common at Moçambic, where I procured some specimens. I may here mention that Mr. Faulkner, one of the Livingstone-Search Expedition, informed me that myriads of Bee-eaters form their nests in holes on the banks of the Shiré river*.

4. NECTARINIA NATALENSIS, Jard.

I procured a male specimen of this most beautiful Sun-bird at Moçambic, also a nest in an unfinished state. The structure was hanging from a twig about six feet from the ground; it was kidney-shaped, with the two lobes downward and the circular entrance opening from the bottom of one lobe; the material of which it was built was dry hay-like fibre and grass intricately interwoven. The bird was not at all rare.

5. CALAMODYTA RUFESCENS (Keys. & Bl.).

Flew on board the ship about 150 miles from the coast of Madagascar.

* [Cf. Ibis, 1864, p. 324.—ED.]

- | | |
|--|--------------------------|
| 6. PYCNONOTUS NIGRICANS (Vieill.). | } Plentiful at Moçambic. |
| 7. LANIARIUS CUBLA (Lath.). | |
| 8. JUIDA LEUCOGASTER (Gm.). | |
| 9. ANTHUS CAMPESTRIS, Bechst. | |
| 10. MACRONYX FLAVICOLLIS, Swains. | |
| 11. HYPHANTORNIS NIGRICEPS, Layard, B. S. Afr. p. 180. | |

In November at Moçambic these birds were plentiful, and busily engaged building their nests. I counted not less than twenty of their dome-shape habitations hanging from the leaves of the cocoa-nut palm; they were made of interwoven hay and leaf-fibres, and had an oval entrance from the bottom. The old birds were flying backwards and forwards with straws, and had all the confident and impudent manner of our domestic Sparrow; in fact the tree that they were building on was in the middle of a negro village.

I do not think that they bear confinement well, as some that I had in a roomy cage soon died.

12. CRITHAGRA CHRYSOPYGA (Swains.).

This pretty little bird was brought to the ship for sale at Zanzibar.

- | | |
|--------------------------------|-----------------------|
| 13. PLOCEUS CAPENSIS (Linn.). | } Common at Moçambic. |
| 14. VIDUA PRINCIPALIS (Linn.). | |

15. SPERMESTES CUCULLATA, Swains.

Very common at Moçambic. I had about a dozen of them in a cage; their method of roosting is singular. Four or five would form a base, and on the backs of these three or four more would place themselves, till they were piled up in several tiers, forming a compact lump of feathers, some of them resting on their sides or backs. Occasionally, as may be easily imagined, the whole fabric would topple over; and when this occurred at night those that fell remained at the bottom of the cage.

16. CENTROPUS SENEGALENSIS (Linn.).

Not rare at Moçambic, hopping about the low bushes and

feeding on the ground. Swainson (Nat. Lib. xxiii. p. 186) describes specimens of this bird from *West Africa* as having "upper covers and tail brown, glossed with green." In the specimen that I procured the upper coverts are marked with longitudinal lines of pale fulvous brown, as are also the basal part of the tail-feathers. Neither are the greater scapulars and the tips of the lesser quills banded with dusky black.

17. *ŒNA CAPENSIS* (Linn.).

This beautiful little Dove was very common at Mozambique, concealed during the heat of the day, but flying swiftly through the cocoa-nut groves in the morning and evening.

18. *NUMIDA MITRATA*, Pall.

This and the following species were given to me by Dr. Kirk at Zanzibar, which island they inhabit.

19. *NUMIDA PUCHERANI*, Hartl.

I brought four of these birds alive to the Cape; but as I was unable, from illness, to attend to them when there, three died and one escaped, or I should have forwarded them to England. I fancy that they must be pretty hardy, as the one that got away is now living on the mountain-side at the back of Simon's Town, where it must be put to severe shifts to get a living amongst the parched bushes and rocks, besides which it survived six weeks' confinement on board ship. I sent the skins to Mr. Layard, who writes to me, "*Dr. Kirk, in epistola*", names this bird *N. pucherani*; it differs from my *N. cristata* obtained at Fazy and elsewhere; but I have no description to refer to"*.

20. *SQUATAROLA HELVETICA* (Linn.).

Common at Zanzibar, where I procured young birds in November.

21. *ARDEA BUBULCUS*, Savigny.

Many of these birds, in breeding-plumage, flew on board the ship, apparently from Madagascar, when we were about 150

* [Dr. Hartlaub's description is given Journ. für Orn. 1860, p. 341. Cf. P. Z. S. 1863, p. 126.—ED.]

miles from the land; they were plentiful at Zanzibar and Moçambic.

- | | |
|--------------------------------|---|
| 22. ARDEA CINEREA, Linn. | } All these occur at Moçambic and Zanzibar, and probably on the intermediate coast. |
| 23. ARDEA GARZETTA, Linn. | |
| 24. NUMENIUS ARQUATUS (Linn.). | |
| 25. TOTANUS GLOTTIS (Linn.). | |
| 26. TRINGA SCHINZI, Brehm. | |
| 27. TRINGA SUBARQUATA (Gmel.). | |

28. PHENICOPTERUS ERYTHRÆUS, Verr.

Plentiful, in large flocks, on the Moçambic flats.

29. PLECTROPTERUS GAMBENSIS (Linn.)*.

Mr. Young, who conducted the expedition up the Zambesi in search of Dr. Livingstone, presented me with a living specimen of this bird, which he had brought from the Shiré river.

Mr. Layard, to whom I sent it to look at, writes to me saying, "*P. gambensis*, I think; but it differs much from my specimens, being very much blacker, and having far fewer white markings on it." I intend, if possible, to forward this bird to England alive.

30. THALASSIDROMA MELANOGASTER, Gould.

This species joined us directly we were outside False Bay, and remained with us till about lat. 27° S. I never noticed them to settle on the water, nor with the closest observation did I ever see how they fed; they would hover over refuse thrown from the ship, but did not appear to touch the water, or patter along its surface like *T. pelagica*. That they do feed on spawn I have previously noticed. Although they were in hundreds I never noticed a *T. leucogaster*, and I should not wonder if it did not eventually turn out that it is only an accidental variety of this species.

Mr. Layard, however, informs me that he has both species in the South-African Museum.

* [Qu. *P. rueppelli*, Sclater, P. Z. S. 1859, p. 131, pl. cliii., and 1860, pp. 38-42?—ED.]

+ 31. THALASSIDROMA PELAGICA (Linn.).

This bird replaced *T. melanogaster* when we were between the latitudes of the Zambesi and Zanzibar, the former of these places being, I suspect, its extreme southern range, as Mr. Layard does not notice it in his work.

+ 32. PROCELLARIA GIGANTEA, Gmel.

The Giant-Petrel was not uncommon from the Cape to lat. 27° S., where it left us. At night, when hovering round the ship, it emits the most diabolical sound, between a croak and a scream; this considerably startles the mariner, who does not know to what it is attributable, especially as it is often sounded within a few feet of his ear.

+ 33. PROCELLARIA GLACIALOIDES, A. Smith.

Only one came under my observation; his habits appeared very similar to those of the preceding species.

+ 34. PROCELLARIA CAPENSIS, Linn.

Decidedly the commonest of the large Petrels in these seas. I think their breeding-place is at present unknown.

35. PROCELLARIA CINEREA, Gmel.

36. PRION BANSKI (A. Smith).

{ Generally four or five
in sight from the
Cape to the entrance
of the Mozambic
Channel.

+ 37. DIOMEDEA EXULANS, Linn.

The Wandering Albatros is seldom seen near land. When well at sea we were visited by them, but I never saw them to the northward of the 27th parallel of south latitude. I am inclined to doubt whether this bird ever visits the northern hemisphere, notwithstanding that three or four specimens are recorded as having been obtained in Europe (though I can hear of none later than 1833)*; but, I believe, they have no more

* [Only two of these reported occurrences can, we think, be accepted as free from doubt:—that near Dieppe, about the year 1830, the head and feet of the bird being in the collection of the late M. Hardy (Degl. Orn. Eur. ii. p. 357); and that near Antwerp in 1833, when the bird was seen by Drapiez (Isis, 1835, p. 259). All the other notices possibly refer to

right to a place in the European avifauna than an escaped Cockatoo would have. I have myself passed two summers in Labrador, and crossed the North Atlantic Ocean eight times, but failed in ever seeing one. Without wishing to force my opinions on any one, I must say that I think more trash has been written about this bird than any other that I have seen noticed; for instance, Nuttall says (Man. Orn. ii. p. 341) that he was told that they fly near the water, "watching the motions of the Flying Fish, which they seize as they spring out of the water to shun the jaws of the larger fish which pursue them." Now I think that any one who has ever seen an Albatros feed will agree with me that such a statement must be purely derived from the imagination. I have *never* seen an Albatros take food on the wing; I do not think it would be possible for them to do so. Their method of feeding is to place their unwieldy bodies on the water as near to the floating piece of squid or refuse as possible, and after a careful survey they will swim up to it and eat it. As to the exciting chase after Flyingfish, I can only state that, where the Albatros abounds, the Flyingfish is rare, and scarcely ever seen above the surface. Then, again, there is the statement in Dr. Bennett's 'Gatherings of a Naturalist in Australia' (p. 78), in which that gentleman institutes an elaborate comparison between the flight of an Albatros and the course of a ship on the water; it is made more luminous by a very accurately drawn figure. But, unfortunately, as Captain F. W. Hutton has shown (Ibis, 1865, pp. 295-297), there is a mechanical principle, relating to the requirement of two component forces to form a resultant, which, from being entirely lost sight of in his argument, causes it to fall to the ground. Having often attentively watched the flight of the Albatros, I have ever failed to detect the mysterious and wonderful power of wing ascribed to it by observers like the above, who have perhaps been more highly favoured. None

Diomedea chlororhynchus, two specimens of which seem undoubtedly to have been killed near Kongsberg in Norway in April 1837, while, according to Messrs. Holl and Neville Wood, a few months previously, 25 Nov. 1836, one was shot on the Trent, at Stockwith, near Gainsborough (Analyst, vi. pp. 160, 161).—Ed.]

can regard without admiration the beautiful picture presented by this bird cleaving its way in graceful curves and sweeps over the wild troubled waves of the Atlantic; but its immense pectoral muscles and light hollow bones, added to its surface of wing, would amply account for all.

+ 38. *DIOMEDEA MELANOPHRYS*, Temm.

Locality the same as the preceding, but more given to visiting the bays and harbours of the coast. It is not at all an uncommon sight to see this bird sitting, with a superlatively stupid manner, close to the fishing-boats in False Bay, waiting for bait or refuse to be thrown overboard, when they swim up and devour it.

+ 39. *DIOMEDEA FULIGINOSA*, Gmel.

The rarest of the Albatroses this cruise, but seen in the same locality as the preceding species. *D. chlororhynchus* was not observed; probably it was away in its breeding-grounds.

40. *STERCORARIUS CATARRHACTES* (Linn.) ?

Off the Comoro Islands I saw one of these birds; but, as I did not procure a specimen, I may have been mistaken.

41. *STERNA VELOX*, Rüpp.

In great abundance at Moçambic. No other *Laridæ* were observed.

42. *FREGATA AQUILUS* (Linn.).

Visited by several of these birds when near the Comoro Islands. Mr. Layard adds, "They breed on Sandy island."

+ 43. *PHAETON RUBRICAUDA*, Bodd.

Several in the Moçambic channel.

XXV.—*On the Genus Acredula*. By R. B. SHARPE.

THE object of the present paper is to draw attention to the differences between the Bottle-Titmouse of the British Islands and the corresponding form inhabiting Scandinavia, and to adduce facts in favour of their recognition as distinct species. I undertook the investigation of the subject on reading, in my friend Mr. J. Edmund Harting's 'Birds of Middlesex' (p. 59), that there were in the collection of Mr. John Hancock, and in the

Museum at Newcastle-on-Tyne, specimens of a Bottle-Titmouse with a white head; and the author suggests the possibility of the continental being specifically distinct from the British bird. Further research showed me that a similar belief had been expressed by other ornithologists*; and it was therefore with renewed confidence that I set to work to examine all the material at my command. The great difficulty I have experienced in procuring continental specimens with the sexes marked so that I could rely upon them, must be my excuse for the imperfections of the present essay; but I have endeavoured to indicate all points on which I am not perfectly clear, and I hope that ornithologists, now that the subject has been pointed out to them, will do their best to enlighten us with respect to the exact geographical distribution of the two species, as I hope to convince my readers these birds are.

I am sure that no ornithologist, comparing carefully the plate of *Parus caudatus* in Mr. Gould's 'Birds of Europe' with any coloured figure of the bird under the same name in the works of German or Scandinavian authors would consider that they represented the same species; for the male of the Scandinavian bird is always figured with a white head, while the male of the British species has a band on each side of the head extending from the eye to the nape, the female only of the former having a dusky band on each side of the head, as in *both sexes of the English bird*. This, then, is the principal point on which I ground my proposition that they ought to be recognized as specifically distinct, viz. that the sexes of the British bird are alike, while in the Scandinavian Bottle-Titmouse they differ considerably one from the other. Nor is my conviction founded on figures in any work alone; for I have lying before me specimens from Great Britain, Denmark, Holland, and Germany; and I propose now to consider the geographical distribution of the two species, so far as the material I have at hand will allow me; and it will be seen that all I have to add is in favour of their specific separation.

For the loan of the Danish birds I am indebted to the Rev. H. B. Tristram, who has always most kindly lent me specimens

* Ibis, 1862, p. 92; 1863, p. 189.

to aid me in my studies ; but as in the present instance the sexes of the specimens were not marked, I cannot rely on their correct determination. They are both young birds, in which stage of plumage the two species approach each other ; but Scandinavian examples always have the white on the head and throat much purer than in any British specimen I have yet seen. I possess, however, through the kindness of Mr. J. G. Keulemans, of Leyden, a pair of adult birds from Holland, concerning which he has sent me the following note:—"The two birds I have sent you are male and female. The old male has a pure white head, and is less rufous on the back. Very young ones resemble the female, but are browner on the head. You will thus see that I have sent you a pair of adult birds. It is seldom that *Parus caudatus* is found breeding in Holland ; but it is very common in the winter-time. It breeds in Northern Europe, and only comes to us in winter ; and from October to March they are seen flying in flocks of from five to twenty individuals. These flocks consist of the old birds and the family of young ones. They are very tame, and are easily captured, though very difficult to keep alive in confinement. If one is caught, it makes a peculiar whistling noise, like *dzir-r-r-r-ell*, which no sooner is heard by its companions than they all fly round the captive, and come so close as almost to be taken with the hand. I know that they make a very artistic nest, but I have never seen one."

From the foregoing remarks it will be seen that the white-headed Titmouse only comes to Holland in the winter. In Denmark, Norway, and Sweden, however, it breeds, according to the ornithologists of those countries, and in the two last-mentioned as far north as lat. 63°*. Still in Norway it is probably a local species, for my friend Mr. F. W. Backhouse tried unsuccessfully during a three months' trip last summer to procure me a specimen, and the bird was not known to the country-people of whom he enquired.

The white-headed Bottle-Titmouse would, however, seem to be common in Siberia. Middendorff obtained an example in January at Udskoj-Ostrog, between the Stanovoi Mountains and the Sea of Ochotsk, which agreed with European specimens,

* Wallengren, Naumannia, 1855, p. 136.

as did also the birds procured by Schrenck in Upper and Lower Amoorland. Radde likewise procured specimens during his journey through the south of East Siberia, and observes that they agreed exactly with those collected by Schrenck in Amoorland. The birds also which he obtained at Onon and Irkutsk are precisely the same as the European bird, "which," says he, "is very extraordinary; for from the Upper Ussuri we have received through Herr Maximowicz a Titmouse which neither in the marking of the head, nor in its proportions, agrees with *Parus trivirgatus* of Temminck and Schlegel, but sufficiently so with old Siberian Long-tailed Titmice".

In Germany it also occurs; and Mr. Harting has very kindly given me a specimen from that country. This is a male, procured in August 1863; and from the worn condition of the plumage it is evident that it had not begun to moult. I mention this because it is suggested by some that the white head is only the winter dress of the Scandinavian bird.

That the *Parus caudatus* of Linnæus was founded upon this persistently white-headed bird there can be, I think, no doubt; and when we consider the characters on which *Motacilla yarrelli* is distinguished from *M. alba*, *Pyrrhula coccinea* from *P. vulgaris*, *Sitta casia* from *S. europæa*, and *Troglodytes borealis* from *T. europæus*, we cannot refuse to acknowledge the specific distinctness of the British form, on which the name *Mecistura rosea* was long ago bestowed by Mr. Blyth*.

I wish to add here a word on the adoption of the generic name *Acredula*, in preference to *Mecistura* and *Orites*.

The propriety of separating the Long-tailed Titmice from the true *Parus* was recognized as long ago as 1752 by Möhring; and to this day his genus *Orites* is adopted by some authors. But the excellent rules of zoological nomenclature adopted by the British Association exclude all Möhring's genera; and, as has been pointed out (*Ibis*, 1865, p. 98), there is an inconvenience in using the name *Orites*, since it has been proposed by Keyserling and Blasius for a group of *Fringillidæ*. Ornithologists will,

* White's "Natural History of Selborne. With Notes by EDWARD BLYTH. London: 1836," p. 111, note.

however, agree with Dr. Günther when he remarks (*Ibis*, 1865, p. 97) that the usually adopted genus of *Mecistura*, Leach, should give way to that of *Acredula*, Koch. "For these last two generic names were published in 1816; but whilst the former is used only in a list of indigenous birds in the British Museum, without any characters, that of the last-mentioned author is accompanied by a very elaborate diagnosis (see Koch, 'System der baier. Zool.' p. 199)."

Having therefore endeavoured to show that *Acredula* is the genus that should properly be employed for the true Bottle-Titmouse, of which the continental bird is the type, we will proceed to consider the species included in it. These are six in number, and seem to divide themselves naturally into two sections, distinguished by the presence or absence of a gular spot, as the following synoptical table, in which I have endeavoured to point out the distinguishing specific characters, will show:—

A. Maculâ gulari nullâ.

a. Dorso medio nigro.

a'. Pileo toto niveo..... 1. *A. caudata*.

b'. Pileo medio albo, vittâ utrinque nigrâ,
genis cinerascensibus 2. *A. rosea*.

c'. Similis *A. roseæ*, sed omnino minor et
coloribus dilutioribus 3. *A. trivirgata*.

b. Dorso medio concolori 4. *A. swinhoei*.

B. Maculâ gulari nigricante, dorso concolori.

a. Major, pileo nigro, vittâ medianâ cinereo-
albidâ, fronte cinereâ 5. *A. tephronota*.

b. Minor, pileo nigro, maculâ nuchali vinaceo-
griseâ, fronte rubescente..... 6. *A. glaucogularis*.

The above are at present the only known species belonging to this truly Palæarctic genus. It is, however, possible that more species are yet to be discovered in the almost unexplored regions of Central and South-Western Asia; and I would draw attention to the remarkable fact that between Asia Minor, where we have *A. tephronota*, no species of the genus is known until we get to China, the habitat of *A. glaucogularis*. It should be mentioned, however, that in the Himalayas are found the closely allied genera *Egithaliscus*, *Acanthiparus*, and so on, which, however, Mr. Blyth informs me are not true Bottle-Tit-

mice, presenting distinct modifications of form and habits. I have therefore been very careful in collating the statements of the authors on whose descriptions I have had principally to rely. It is also probable that further research will permit us to add to the list which I have drawn up; and now that the attention of travelling naturalists has been called to the subject, we shall doubtless soon know more of the geographical distribution of each species.

I cannot, however, conclude these remarks without returning my best thanks to all the kind friends who have aided me in the preparation of the present essay, particularly Dr. P. L. Selater, to whom I am indebted for many kind suggestions.

1. *ACREDULA CAUDATA*. Scandinavian Bottle-Titmouse.

Parus caudatus, Linn., Syst. Nat. i. p. 342 (1766); Nozem. & Sepp, Nederl. Vog. i. tab. 26 (1770); Kjærbo., Danm. Fugle, p. 188, t. xxiii. (1852); Middend., Sibir. Reise, Vögel, p. 154 (1853); Nilsson, Skand. Faun. Fogl. i. p. 425 (1858); Fritsch, Vög. Eur. p. 106, t. 26, fig. 9 (1861); Collett, Overs. Christian. orn. Faun. p. 75 (1864).

Parus (Mecistura) caudatus, Schrenck, Reise Amurl. i. (Vög.), p. 305 (1860); Radde, Reise Süd von Ost-Sibir. ii. p. 196 (1863).

Paroides longicaudus et *P. caudatus*, Brehm, Vög. Deutschl. pp. 470, 471, t. xxiv. (1831).

Orites caudatus, Sundev., Svensk. Fogl. p. 92, t. xv. figs. 4, 5 (1856); Degl. & Gerbe, Orn. Eur. ii. p. 571 (1867) *pt.*

Hab. Siberia (*Middendorff*, *Radde*), Amur-land (*Schrenck*), Sweden (*Nilsson*, *Sundevall*), Norway (*Collett*), Denmark (*Kjærboelling*), Germany (*Brehm*, *Naumann*), Holland (*Nozeman*, *Keulemans*), North Britain (*Harting*).

2. *ACREDULA ROSEA*. Western Bottle-Titmouse.

Mecistura rosea, Blyth, White's Nat. Hist. of Selborne, p. 111, note (1836).

Mecistura longicaudata, Macgill., Hist. Brit. Birds, ii. p. 454 (1839).

Mecistura caudata, Jaubert & Lapomm., Rich. Orn. p. 186 (1859); Gould, B. Gr. Br. (1862); Bettoni, Ucc. Lomb. i. fasc. vii. (1866).

Parus caudatus, Savi, Orn. Tosc. ii. p. 20 (1829); Gould, B. Eur. iii. pl. 157 (1837).

Orites caudatus, Degl. & Gerbe, Orn. Eur. ii. p. 571 (1867) pt.

Hab. British Islands (*Auctt. Britt. passim*), France (*Jaubert*), Lombardy (*Bettoni*), Tuscany (*Savi*).

I have carefully examined the descriptions and figures in the works above quoted, and I think there can be no doubt that the birds found in the localities mentioned will prove to be identically the same as our English Bottle-Titmouse, though I have unfortunately been unable to obtain specimens from any of the countries named.

I think also that *A. rosea* will ultimately prove to be the bird inhabiting the following localities; but no precise information having been published by the respective authors, it is difficult to say for certain.

Spain, Lilford, *Ibis*, 1866, p. 383.

Belgium, Sélys-Longchamps, *Faune Belge*, p. 103.

Luxembourg, La Fontaine, *Faune Luxemb.* p. 109.

Sicily, Malherbe, *Faune Orn. Sic.* p. 112.

In Belgium and Luxembourg it is most probable that *A. caudata* is a winter visitant.

3. ACREDULA TRIVIRGATA. Japanese Bottle-Titmouse.

Parus (Megisturus) trivirgatus, Temm. & Schl., *Faun. Jap. Aves*, p. 60, pl. 34 (1850).

Acredula trivirgata, Cab., *Mus. Hein.* i. p. 90, note (1850).

Middendorff considers this bird to be a variety of the Siberian form; but the original describers state that every one of a large number of specimens showed the dark stripe on the side of the head as in *young examples* of the European species; and we may therefore conclude that this stripe is constant. The colours also, though distributed as in our British bird, are altogether lighter, and the measurements of the bird are much less. It does not appear to occur in the northern islands of Japan; for it was not obtained by Mr. Henry Whitely during his visit to Japan (*cf.* *Ibis*, 1867, p. 198), and his father tells me that it was not even once seen. Nor is it included in Capt. Blakiston's list of the birds of Northern Japan (*cf.* *Ibis*, 1862, p. 321). I

have, through the kindness of Mr. George R. Gray, been able to examine specimens in the British Museum; and there can be no doubt of its being a good species allied to the British bird.

4. *ACREDULA SWINHOOI*. Swinhoe's Bottle-Titmouse.

"*Mecistura swinhoii*, Zelebor," Pelzeln, Reise 'Novara,' Aves, p. 66, Taf. iii. figs. 1, 2 (1865).

Hab. Shanghai (*Zelebor*).

This Titmouse, which I have never seen, and which is at present only known to science by the description and plate above cited, is allied, according to the author's remarks, to *A. glaucogularis*, Gould. Herr von Pelzeln says it must remain doubtful whether the *Mecistura caudata* of Mr. Swinhoe (P. Z. S. 1863, p. 270), observed by that gentleman at Shanghai, refers to this species. As Mr. Swinhoe procured no specimens, I have thought it best to omit it as a synonym.

5. *ACREDULA GLAUCOGULARIS*. Silvery-throated Bottle-Titmouse.

"*Orites? glaucogularis*, Gould," Moore, P. Z. S. 1854, p. 140.

Mecistura glaucogularis, Gould, B. Asia, pt. vii.

To Mr. Gould's notice of this pretty Titmouse in the 'Birds of Asia' I can add nothing, except that Mr. Whitely, of Woolwich, has received specimens from China, thus undoubtedly fixing that country as the true habitat of this species.

6. *ACREDULA TEPHRONOTA*. Günther's Bottle-Titmouse.

Orites tephronotus, Günth., Ibis, 1865, p. 95, pl. iv.

Hab. Asia Minor.

Mr. Salvin has kindly lent me a specimen of this bird from his collection, which agrees with Dr. Günther's description. It was obtained from Mr. Robson, of Ortakeny, who procured the specimens first described by Dr. Günther.

XXVI.—On the Species of Birds collected by Dr. Stoliczka in Thibet and the Himalayas. By AUGUST VON PELZELN*.

DR. F. STOLICZKA, who, as member of the Geological Institute

* [Dr. Stoliczka's collections having been more than once mentioned

at Calcutta, has done so much for the advancement of the geology and palæontology of India, brought with him, when he last came to Europe, a very rich collection of birds, one of the results of his travels in Thibet and the Himalayas. The scientific training of the collector has given to this collection a special value, inasmuch as the localities are stated with the greatest accuracy, in many individuals the sexes have been determined, as well as their age and the time of year when they were killed, and, of many species, very complete series are sent, showing the different phases of plumage. As Dr. Stoliczka is very well versed in Indian ornithology, he has himself named, with few exceptions, all the species in the collection. Our museum is deeply indebted to him for presenting to it the unrestricted selection we were permitted to make, and thus enriching it with so highly valuable an acquisition.

In the following pages, with Dr. Stoliczka's consent, I purpose to publish remarks on the birds* collected by him, and to give all the notes which are attached to many of the species.

As a knowledge of the localities and the heights above the sea-level which the different species inhabit is of special importance, I commence with an alphabetical list of their habitats, to which Dr. Stoliczka has himself most kindly added the respective geographical position and the altitude :—

Ankhang (camping-ground), Province of Rupshu, in West Thibet, 14,000–15,000 feet.

Budrawar, in South-east Cashmere, 3000–7000.

Chamba, North-western Himalaya, 2000–3000.

Chergaon, West Thibet, 11,000–12,000.

Chini, North-west Himalaya, 9000.

in 'The Ibis' (1866, p. 142, & 1867, pp. 140–143), we are sure that such of our readers as are interested in Indian ornithology will highly appreciate this account of them by an authority so trustworthy as Herr von Pelzeln of Vienna. It appeared in the 'Journal für Ornithologie' for the present year (pp. 21–37), and, but for the kindness of Lord Walden in undertaking a translation of it, would probably remain unknown to Indian ornithologists.—ED.]

* A few new or doubtful species which Dr. Stoliczka himself proposes to describe, in his forth-coming work on Thibet, are not included.

Chumig-Kiarsa, north of the Baralatse Pass, Prov. Rupshu, on the Lingti River, 13,000.

Dras, West Thibet, 10,000–11,000.

Gaora, West Thibet, 12,000–15,000.

Gulabbagh, easterly from Leh, Prov. Ladakh, West Thibet, 11,000.

Gyagar, Lake of, in the vicinity of Korzog, Prov. Rupshu, West Thibet, 15,500–17,000.

Hoomerpoor, North-west Himalaya, not far from Kangra, 1000–2000.

Jaora, southerly from Kishtwar in East Cashmere, 4000–5000.

Indus, at Puga in Rupshu, 14,000–15,000.

Islamabad, in East Cashmere, 5000–6000.

Kangra, North-west Himalaya, 2000.

Kangsar, Prov. Lahul, West Thibet, 11,000.

Kargil, Prov. Dras, West Thibet, 11,000.

Karoo, Prov. Dras, 11,000.

Kishtwar, East Cashmere, 3000–4000.

Kokser, in Lahul, West Thibet, 8000–9000.

Korzog, in Rupshu, West Thibet, 15,000–16,000.

Kotegurh, north-east from Simla, North-west Himalaya, 4000–8000.

Kyangsisa, Prov. Rupshu, West Thibet, 16,000.

Kyelang, in Lahul, 9000.

Lama Yuroo (camping-ground), valley of Tsarap, Rupshu, 13,000.

Lara, in Spiti, 12,000.

Losar, in Spiti, 13,000–14,000.

Leh, Prov. Ladakh, West Thibet, nearly 12,000.

Mahasu, near Simla, North-west Himalaya, 6000–7000.

Markanda, north-west from Simla, 2000.

Marselang, West Thibet.

Matiana, north-east from Simla, North-west Himalaya.

Menali, Prov. Kulu.

Nachar, North-west Himalaya, 6000–8000.

Nadaon, North-west Himalaya, 2000–3000.

Narkanda, north-east from Simla, North-west Himalaya, 8000–9000.

Niri Sumdo, Prov. Karnag, West Thibet, 14,000–16,000.

Nirth, near Kotegurh, North-west Himalaya, 4000.

Pangi, near Chini, North-west Himalaya, 9000–10,000.

Parang, below the pass of, between Spiti and Rupshu, 17,000.

Pharkachan, near Suroo, West Thibet, 9000–10,000.

Po, in Spiti, West Thibet, 12,000.

Puga, Prov. Rupshu, West Thibet, 14,000.

Rampoor, North-west Himalaya, 4800.

Ranga, on the Indus, West Thibet, 11,000.

Rangdum-gonpa, west from Padam, West Thibet, 10,000.

Rogi, near Chini, North-west Himalaya, 8000–9000.

Sachatti, North-west Himalaya, 3000–4000.

Saleskote, North-west Himalaya, 3000-5000.
 Serahan, North-west Himalaya, 9000-10,000.
 Simla, North-west Himalaya, 6000-7500.
 Singpur, North-west Himalaya, 3000-6000.
 Sirinagur, Cashmere, 5000.
 Siringur, Cashmere.
 Sisul, in Lahul, West Thibet, 11,000-12,000.
 Sultanpoor, in Kulu, North-west Himalaya, 4000.
 Suroo, West Thibet, 10,000-12,000.
 Taglang (camping-ground), Rupshu, West Thibet, 15,000-16,000.
 Thalco, in Spiti, West Thibet, 12,000.
 Theog, near Simla, North-west Himalaya, 6000.
 Tnantse Sumdo, in Karnag, West Thibet, 15,000-16,000.
 Tranda, North-west Himalaya, 7000-9000.
 Urui, North-west Himalaya, 6000.
 Wangtu, North-west Himalaya, 5000-6000.
 d'Zala, north from the Baralatse Pass, West Thibet, 15,000.
 Zangra, north of Suroo, West Thibet, 10,000.
 Zingzingbar, North Lahul, West Thibet, 15,000.

GYPÆTUS BARBATUS, L. Kotegurh (winter) *.

BUTEO FEROX (S. G. Gmelin) ; *B. canescens*, Hodgs. Kotegurh (winter).

The specimen sent belongs to the variety *B. rufinus*, and agrees with the examples of the adult birds of that variety collected by Herr Kotschy in Nubia (compare my 'Uebersicht der Geier und Falken,' 147 D), only that the Himalayan bird has the tail banded, and consequently must be considered somewhat younger.

AQUILA PENNATA (Gm.). Rogi.

A young bird, but able to fly, which was sitting in its nest, but then left it. Underneath brown, with a large white shoulder-spot. It is very like a young male shot at Guntramsdorf in Lower Austria (Uebers. der Geier und Falken, 161 C), only that it has the occiput and nape more rusty, and that the caudal bands are scarcely apparent. The quills are shorter, and have evidently not reached their full dimensions.

* Some of the species are noted "in winter only." These are migratory birds, which only frequent Kotegurh and the southern slopes of the North-western Himalaya (at heights from 4000 to 8000 feet) during the winter, and which are not to be found there in summer.

FALCO COMMUNIS, Gm. Kotegurh (winter).

By the size appears to be a male. Head and nape blackish, here and there mixed with rufous; above grey, with black markings; cheeks black; throat whitish; region of the crop and the breast faintly, the belly more decidedly, washed with rufous; throat, region of the crop, and breast without any markings; belly, flanks, and under surface of wings marked with narrow, dark, often wavy, transverse lines. Agrees very closely with a specimen obtained by the 'Novara' Expedition in Chili.

HYPOTRIORCHIS SUBBUTEO (L.). Rogi.

TINNUNCULUS ALAUDARIUS (Briss.). Kotegurh (winter).

MILVUS GOVINDA, Sykes. Kotegurh (winter).

ACCIPITER NISUS (L.). Chini, Kotegurh (winter).

The lengths of wing in the specimens sent are respectively $7\frac{1}{4}$ ", 8", $9\frac{1}{4}$ ". None of the specimens possess a median gular stripe. One individual, evidently a male, is ticketed *Accipiter nisoides*, Blyth? (*A. gularis*, Schlegel); but, in my opinion, all the examples belong to the true *A. nisus*. With reference to the above-mentioned closely related species, compare Blyth, 'Ibis,' 1863, p. 15 (Malacca, Sumatra?), 1865, p. 28, 1866, p. 240 (*A. nisoides*); and Schlegel, Mus. Pays-Bas, *Astures*, p. 33, *Nisus gularis* (Nipal, Japan).

SYRNIUM NEWARENSE, Hodgson. Kotegurh (winter).

The wing in this specimen measures 16". A specimen received from Baron Hügel, and also from the Himalayas, is decidedly smaller (wing 15"); above it is much redder, and the wavy cross markings underneath are narrower and paler.

SYRNIUM NIVICOLUM, Hodgs. Kotegurh.

ATHENE RADIATA, Tickell. Kotegurh (winter).

GLAUCIDIUM BRODIAEI (Burton). Kotegurh (winter), Narkanda.

CYPSELUS MELBA (L.). Kotegurh (winter).

CYPSELUS APUS (L.). South-west from Leh.

CYPSELUS AFFINIS, Gray & Hardw. Kotegurh (winter).

A specimen, said to be from Ceylon, received from Baron Hügel, agrees very well with this one from the Himalaya.

CYPSELUS LEUCONYX, Blyth. Kotegurh.

HIRUNDO DAURICA, L. Nachar.

HIRUNDO FILIFERA, Steph. Kangra.

HIRUNDO RUPESTRIS (Steph.*). Kotegurh.

HALCYON FUSCA (Bodd.). Kotegurh (winter).

MEROPS VIRIDIS, L. Kotegurh, Nachar.

UPUPA EPOPS, L. Kotegurh, Korzog (August).

Besides European and the specimens sent, our collection contains an old male from Chartum (August?), sent by Dr. Heuglin, and two individuals from Amoy (May), sent by Mr. Swinhoe. The Chinese birds are smaller than the others; and all Asiatic specimens, more especially on the back, are of a greyer hue.

NECTARINIA ASIATICA (Lath.). Kotegurh (winter), Rampoor.

NECTARINIA GOULDIÆ (Vig.). Kotegurh (winter), Tranda, Gaora.

MYZANTHE IGNIPECTUS, Hodgs. Kotegurh (winter), Gaora.

CERTHIA HIMALAYANA, Vig. Pangi, Kotegurh (winter), Ranga, Gaora.

TICHODROMA MURARIA (L.). Kotegurh, Tnantse Sumdo.

The entire under surface from the base of the bill of the bird from Tnantse Sumdo is grey, and the bill from the angle of the mouth only measures 1"; while the second specimen from Kotegurh has a white throat, and a bill measuring 15". The occiput is tinged with an ochreous hue.

SITTA LEUCOPSIS, Gould. Budrawar, Pangi, Simla, Kotegurh (winter).

SITTA HIMALAYENSIS, Jard. et Selby. Kotegurh, Gaora.

* [This species was first described, and under this name, by Scopoli, in 1769 (Ann. i. Hist.-Nat. p. 167. no. 253).—Tr.]

PNOEPYGA SQUAMATA (Gould). Kotegurh?

SUYA CRINIGER, Hodgs. Kotegurh.

The example sent does not reach the dimensions given by Jerdon (*Birds of India*, ii. p. 183).

NEORNIS FLAVOLIVACEA, Hodgs.? Rogi, Pangi?

The Pangi specimen differs by having the crop and breast washed with greyish.

ABRORNIS XANTHOSCHISTUS, Hodgs. Kishtwar, Kotegurh, Gaora.

REGULOIDES TROCHILOIDES (Sundev.). Pangi, Kotegurh.

REGULOIDES PROREGULUS (Pall.). Pangi, Chamba, Kotegurh (winter).

REGULOIDES OCCIPITALIS (Jerdon)? Narkanda, Sultanpoor (May), Pangi, Kyelang (June).

REGULUS CRISTATUS, Ray; *R. himalayensis*, Blyth. Kotegurh (winter).

Most careful comparison has convinced me of the specific identity of the European and Asiatic birds.

PHYLLOSCOPUS TRISTIS, Blyth. Kargil.

PHYLLOSCOPUS AFFINIS (Tickell). Menali (June).

COPSYCHUS SAULARIS (L.). Kangra.

SAXICOLA DESERTI, Rüppell*. Kotegurh (only in winter), Lake Gyagar in Rupshu, Ankhang.

Both the specimens of males agree well with an Egyptian specimen sent by Consul Acerbi, excepting that the latter is smaller.

SAXICOLA PICATA, Blyth. Hoomeerpoor.

* Dr. Stoliczka received from Captain Beavan a pair of *Saxicola saltatrix*, Ménériés, which were collected in November 1866 at Umballa (500 feet), and fully agree with the examples in our museum. Among these, one from Arabia was bought of the Berlin Museum (as *S. valida*, Licht.), one was received in exchange from the Frankfort Museum (as *S. olivacea*, Mus. Frankf.), one was obtained in Nubia by Herr Kotschy, and, lastly, one was sent from the White Nile by Consul Reitz.

PRATINCOLA RUBICOLA (L.); *P. indica*, Blyth. Sirinagur. (summer ?), Kotegurh (winter), Serahan, Menali (June).

After a careful examination of the series of this species sent by Dr. Stoliczka, I cannot find any difference between them and European individuals.

PRATINCOLA CAPRATA (L.). Kotegurh, Rampoor, Sultanpoor (May), Sachatti (November).

The male of *P. caprata* from the Himalaya fully agrees with examples of males in our collection from Luzon* (from Temminck), Java (from the Leyden Museum), and Timor (from M. Verreaux).

PRATINCOLA FERREA, Hodgs. Kotegurh, Narkanda, Serahan, Theog, Pangi, Kangra ?, Gaora.

This species is represented by numerous individuals of both sexes and of all ages. Two males, which are in moulting plumage, have the greater part above, more especially, however, the crown and nape, ornamented with yellow longitudinal streaks; the secondaries have rust-red edgings. Underneath the plumage is more or less tinged with yellowish. Both the female specimens sent, and which are of much younger birds, are far more striped with rust-yellow; also underneath they are of a very pale ochre-colour, which is lost on the breast by the dark-edged feathers giving to that part a spotted or scaly appearance.

RUTICILLA RUFIVENTRIS (Vieill.). Dras, Kargil, Leh, Korzog.

RUTICILLA CÆRULEOCEPHALA (Vig.). Kotegurh (winter), Pangi, Rogi.

A series of seventeen examples. The male from Kotegurh, in winter dress, displays yellow-tipped feathers on the entire upper side as well as on the throat and breast. The colouring of the female is as follows:—Above grey-brown; the last of the greater wing-coverts have white edgings; upper tail-coverts and the

* [The type of this species came from the island of Luzon, where, according to Brisson, it is called *Maria-capra*, which Linnæus appears to have Latinized. Its identification with the Indian form is most valuable; for I believe this is the first record published of an actual comparison having been made between an original Philippine and an Indian specimen.—Tr.]

edges of the tail-feathers at the base of the outer webs rust-red. Underneath same colour as above, only much paler, with the centre of the ventral region almost white; under wing-coverts white, brown-spotted; under tail-coverts pale white; quills and rectrices brown. Young birds of both sexes differ from the female by having darker edgings to the feathers—so much so that the bird has a spotted or scaly appearance; while the young male has already the secondaries white-edged, and the tail black with a metallic sheen.

RUTICILLA FULIGINOSA, Vig. Tranda, Pangi, Chamba, Kotegurh, Kangra, Chergaon.

A full-coloured specimen of a male from Pangi has a number of white feathers on the crown. The young birds of both sexes differ from the female by having the feathers on the upper surface towards the end of the shaft showing a white or yellowish spot. On the head and nape the shafts are often light-coloured. In the young male some of the tail-feathers are partly, some almost completely, red; and it is easy to trace the manner in which the red colour develops itself.

CHIMARRHORNIS LEUCOCEPHALA (Vig.). Sind valley, Cashmere, Kotegurh.

The specimen of a female from the Sind valley is evidently not that of an adult; the length of wing is $3\frac{1}{4}$ " ; the belly is not red as in the full-coloured bird, but reddish-black, many of the feathers having faint reddish edgings.

THAMNOBIA CAMBAIENSIS (Lath.). Kangra, Kangsar?

LARVIVORA CYANA, Hodgs. Mahasu, Narkanda.

IANTHIA CYANURA (Pall.). Kotegurh (winter), Pangi.

TARSIGER CHRYSÆUS, Hodgs. Kotegurh.

CALLIOPE PECTORALIS, Gould. Pharkachan, Rangdum Gonpa.

The female is spotted yellow above; underneath, more especially on the breast, the feathers have dark edgings—a colouring which we find exactly like that of the young bird in many species of *Ruticilla*. This specimen is evidently that of a quite young female.

CYANECULA SUECICA (L.). Sirinagur, Saleskote, Zangra, Kargil.

ACCENTOR ALTAICUS, Brandt. Kotegurh (only in winter).

ACCENTOR STROPHIATUS, Hodgs. Kotegurh (only in winter).

ACCENTOR RUBECULOIDES, Hodgs. Korzog.

ACCENTOR HUTTONI, Moore; *A. atrogularis*, Brandt, Gould, Birds of Asia. Kotegurh (winter only).

ÆGITHALISCUS ERYTHROCEPHALUS (Vig.). Kotegurh (winter).

LOPHOPHANES RUFONUCHALIS, Blyth. Pangi.

LOPHOPHANES MELANOLOPHUS (Vig.). Budrawar, Simla, Kotegurh (winter).

PARUS MONTICOLUS, Vig. Kotegurh (winter), Sultanpoor (May).

PARUS CINEREUS, Vieill. Sind valley, in Cashmere, Gaora.

MACHLOLOPHUS XANTHOGENYS (Vig.). Kotegurh (winter), Pangi, Mahasu, Gaora.

The specimen from Kotegurh is that of an old bird with yellow cheeks; the three others have white cheeks, in one slightly mixed with yellow, and the cap is scarcely developed. In these three the extent and gloss of the black colour on the neck and breast are developed in different degrees.

SYLVIPARUS MODESTUS, Burton. Pangi.

CEPHALOPYRUS FLAMMICEPS (Burton). Kotegurh (winter).

ZOSTEROPS PALPEBROSUS (Temm.). Pangi, Serahan, Markanda (May), Kotegurh (winter).

MOTACILLA PERSONATA, Gould, Birds of Asia, pt. xiii. t. 15. Narkanda, Gulabbagh.

The bird from Gulabbagh is in summer dress, and has the upperside black, the middle of the back only being mixed with grey. The male bird from Narkanda is grey above, with the throat white; the crop and breast black, the feathers being edged with white.

MOTACILLA BOARULA, Penn.*; *Calobates sulphurea*, Bechst., Jerdon, Birds of India. Kotegurh, Kokser (June).

BUDYTES RAYI, Bonap. Sirinagur (September), Suroo.

The young bird from Suroo, which probably belongs to this species, has a broken transverse dark band on the breast.

HENICURUS (errore *Enicurus*) MACULATUS, Vig. Kotegurh (winter), Pangi, Chamba.

HENICURUS SCOULERI, Vig. Kotegurh (winter), Chergaon.

PIPASTES AGILIS (Sykes). Kotegurh (winter).

Only differs from *P. arboreus* by having a stouter bill. I do not think that it can be considered specifically distinct, notwithstanding that Jerdon (Birds of India, ii. pp. 228, 229) gives both species as inhabitants of India†.

CORYDALLA RUFULA (Vieill.). Kangra.

AGRODROMA SORDIDA (Rüppell). Islamabad, Kotegurh, Nirth.

ANTHUS AQUATICUS, Bechst. Kotegurh (winter).

Jerdon's expectation (*tom. cit.* p. 239) that this species would be found in the Himalayas has been realized by the examples collected by Dr. Stoliczka.

HETERURA SYLVANA, Hodgs. Kotegurh (winter), Nachar.

MYIOPHONUS TEMMINCKI, Vig. Pangi, Kotegurh (winter), Serahan.

One of the two individuals from Pangi, evidently a young bird, is much smaller than the others (length of wing $6\frac{1}{4}$ "). It is of

* [It is customary to ascribe this name, with a few more, to Pennant. We have not been able to find that he ever bestowed a scientific name on any species. In the present case he certainly should not be cited as the authority; for this species either is, or is not, the *M. boarula* of Linnæus (Mantiss. 1771, p. 527). If it is, the name was first conferred by him; if it is not, the name belongs to another species, and cannot be used for this.—Ed.]

† [May not this specimen be one of the true *P. arboreus*? Does the Vienna Museum possess authentic specimens of the *P. agilis* of Indian authors? Col. Sykes's type is in the East-India Museum and is kept as a species distinct from *P. arboreus* by Horsfield and Moore (Cat. B. Mus. H.E.I.C. i. p. 354). Dr. Jerdon (*ut supra* p. 230), states that the bill in *P. arboreus* is stronger than in *P. agilis*.—Tr.]

a dead black ; the bluish-white spots are scarcely defined, and only to be seen on the breast, the blue of the quills and tail being already present. The lower mandible, instead of being pure yellow, is for the most part dusky.

CINCLUS CASHMIRIENSIS, Gould. Nini Sumdo, in Karnag. Agrees perfectly with Salvin's description (*Ibis*, 1867, p. 117).

CINCLUS ASIATICUS, Swains. Singpur, Nachar.

ZOOTHERA MONTICOLA, Vig. Simla (winter).

The specimen sent differs from an example received through Baron Hügel from the Himalayas by having a shorter bill (18" as against 21" from the angle of the gape in a straight line); but no other difference in size exists. In Dr. Stoliczka's specimen the shafts of the crown-feathers are, for the greater part, of a rust-colour, and the greater wing-coverts show terminal spots of the same colour, which is not the case in the other specimen.

PETROCOSSYPHUS CYANUS (L.). Kotegurh, Rampoor.

OREOCÆTES ERYTHROGASTER (Vig.). Kotegurh (winter), Theog, Matiana.

OREOCÆTES CINCLORHYNCHUS (Vig.). Kotegurh, Pangi, Tranda.

TURDULUS WARDI, Jerdon. Serahan.

MERULA BOULBOUL (Lath.). Kotegurh, Theog.

MERULA ALBOCINCTA (Royle). Kotegurh (winter).

MERULA CASTANEA, Gould. Kotegurh (winter).

PLANESTICUS ATROGULARIS (Temm.). Kotegurh.

Seems to appear there in winter only.

TURDUS HODGSONI (Lafr.). Kotegurh, Simla, Pangi, Chini.

The specimen from Pangi is smaller (wing 6"), and is in adolescent plumage, with yellow on the upper surface.

OREOCINCLA MOLLISSIMA (Blyth). Kotegurh (winter).

GARRULAX ALBOGULARIS (Gould). Kotegurh (winter), Matiana.

TROCHALOPTERUM ERYTHROCEPHALUM (Vig.). Kotegurh (winter), Mahasu, Narkanda.

The specimen from Narkanda is that of a young bird; its wings measure only 3" 8^{'''}, and the tail 3½" in length; the black spots on the nape and the sides of the breast are wanting; otherwise the plumage agrees with that of the adult bird.

TROCHALOPTERUM VARIEGATUM (Vig.). Kotegurh (winter), Narkanda, Kyelang (June).

The rectrices of a male from Kotegurh are tinted with reddish; and in the female from Kyelang the edges of the quills are grey, faintly tending to yellowish.

TROCHALOPTERUM LINEATRUM (Vig.). Kotegurh (winter), Kyelang (June).

GRAMMATOPTILA STRIATA (Vig.). Kotegurh (winter).

STACHYRHIS PYRRHOPS, Hodgs. Kotegurh, Chamba.

POMATORHINUS ERYTHROGENYS, Vig. Kotegurh (winter).

SIBIA CAPISTRATA (Vig.). Kotegurh (winter).

HYPsipETES PSAROIDES, Vig. Kotegurh, Tranda.

OTOCOMPSA LEUCOGENYS (Gray). Kotegurh (winter), Narchar, Serahan.

PYCNONOTUS PYGÆUS, Hodgs. Kotegurh (winter).

TCHITREA PARADISI (L.). Sirinagur, Sultanpoor (May), Kotegurh.

*LEUCOCERCA FUSCOVENTRIS** (Franklin). Kotegurh?

LEUCOCERCA ALBOFRONTATA (Franklin). Nadaon.

CULICIPETA BURKII (Burton). Mahasu.

CRYPTOLOPHA CINEREOCAPILLA (Vieill.). Kotegurh, Gaora.

HEMICHELIDON FULIGINOSA, Hodgs. Kotegurh, Pangi, Rogi, Narkanda, Urui, Gaora.

* [This species must stand as *L. albicollis* (Vieill. N. Diet. xxvii. p. 13, 1818), founded on specimens in the Paris Museum, brought from Bengal by Macé (*fide* Puch. Arch. du Mus. vii. p. 358). It is also the *M. albugularis* of Lesson, Tr. d'Orn. p. 386.—Tr.]

A series of eleven individuals enables it to be seen that the young bird in this species is adorned above with pale ochre or rust-yellow shaft-stripes, while the wing-coverts and the last quills have rather broad rust-yellow borders; beneath, the plumage is whitish, with a spotted or scaly appearance in consequence of the feathers being dark-edged. By degrees the streaks on the upper side become whitish and more and more indistinct; so that in two individuals faint spots on the back and very fine white lines, becoming rather broader towards the end, are only to be found—in a young male from Gaora on the forehead and back of the head, and in the one from Urui on the back of the head and nape only.

EUMYIAS MELANOPS (Vig.). Kotegurh, Mahasu.

A young male from Kotegurh has the throat, part of the breast, and the belly still ochre-yellow.

CYORNIS RUFICAUDA (Swains.). Pangi, Rogi, Urui.

As in *Hemichelidon fuliginosa*, so also in *Cyornis ruficauda* is the resemblance of the plumage of the young bird to that of *Erythrosterna parva* and of many species of *Ruticilla* apparent. In the young male from Pangi the greatest part above appears scaly in consequence of the dark edgings to the ochre-coloured feathers; the edges of the wing-coverts are yellowish. Below, it is whitish, with dark-edged feathers; the middle pair of rectrices and the outer webs of the others are brown, the remainder of the tail being rust-red. A second example from the same locality displays the transition to perfect plumage.

MUSCICAPULA SUPERCILIARIS (Jerdon). Sind valley in Cashmere, Gaora to the south of Kishtwar (October), Pangi, Kotegurh, Nachar, Urui, Rogi.

Ten examples of this species are sent. Above, the female is grey, somewhat inclining to olive; the forehead, lores, and chin are tinted with rust-yellow; the breast is greyish, the rest of the under surface yellowish-white. The young birds of both sexes have the pale yellow feathers above and the whitish feathers of almost the whole lower surface dark-edged, thus giving a scaly appearance to the plumage. In the male specimens the edges of the tail-feathers have already put on their beautiful blue

colour. The further transitions to the perfect state of plumage are very instructively represented in this series.

SIPHIA STROPHIATA, Hodgs. Kotegurh, Narkanda.

SIPHIA LEUCOMELANURA, Hodgs. Kotegurh, Mahasu.

The female (from Mahasu) is reddish-brown above, whitish underneath, here and there washed with ochre-colour. The tail near its insertion is brown, with rust-red edges.

ERYTHROSTERNA LEUCURA (Gm.). Sirinagur (September).

In my opinion not distinct from *E. parva*.

PERICROCOTUS BREVIROSTRIS (Vig.). Kotegurh (winter), Gaora.

DICRURUS LONGICAUDATUS, A. Hay. Kotegurh, Serahan, Gaora (August).

The bird from Gaora (August 26, 1866) is noted as adult and in moulting plumage. In this specimen the length of the wing is 4" 5"', that of the tail 3" 9"'; the rectrices among themselves differ but slightly in length*.

SIVA STRIGULA, Hodgs. Kotegurh (winter).

PROPARUS VINIPECTUS (Hodgs.). Narkanda, Kotegurh (winter).

ALLOTRIUS XANTHOCHLORUS (Hodgs.). Kotegurh (February). *A. ænobarbus*, Temm.; Jerdon, Birds of India, ii. p. 246. *A. xanthochlorus*, Hodgs.; Gould, Birds of Asia, pt. viii. t. 12.

PTERUTHIUS ERYTHROPTERUS (Vig.). Kotegurh (winter).

LANIUS ERYTHRONOTUS (Vig.). Kotegurh, Gaora, Sisu (June).

LANIUS HARDWICKII (Vig.)†. Kotegurh.

CORVUS TIBETANUS, Hodgs. Po in Spiti (July).

Length 26½", tail 12", length of bill 3⅛", height of bill 1⅛"

* [Are the full number of tail-feathers present? or are the outer pairs in process of growth? Otherwise the equality in their length is most abnormal; for this species is distinguished by the outer pairs of rectrices being so much longer than the middle pairs. This bird must fall under the genus *Buchanga*, Hodgs. (cf. P. Z. S. 1866, p. 547).—Tr.]

† [The oldest title for this species is *L. vittatus*, Valenc.—Tr.]

(Dr. Stoliczka). Does not seem to me to differ specifically from *C. corax*.

CORVUS INTERMEDIUS, Adams. Pangi.

NUCIFRAGA HEMISPILA, Vig. Kotegurh, Narkanda, Chini.

NUCIFRAGA MULTIPUNCTATA, Gould. Gaora, in a southerly direction from Kishtwar in Eastern Cashmere.

GARRULUS BISPECULARIS, Vig. Budrawar, Kotegurh.

GARRULUS LANCEOLATUS, Vig. Kotegurh (winter).

DENDROCITTA HIMALAYANA, Blyth. Kotegurh (winter).

D. sinensis (Lath.) ; Jerdon, *Birds of India*, ii. p. 316. *D. himalayana*, Blyth ; Jerdon, *ibid.* iii. p. 874.

UROCISSA CUCULLATA, Gould. Kotegurh ?

U. cucullata, Gould, *Birds of Asia*, pt. xiii. t. 5 ; Jerdon, *op. cit.* iii. p. 873.

Our collection received a specimen of *U. flavirostris* (Blyth), from Cashmere through Baron Hügel.

PYRRHOCORAX ALPINUS, Vieill. Lara in Spiti (July).

FREGILUS GRACULUS (L.). Rogi.

F. himalayanus, Gould, *P. Z. S.* 1862, p. 125* ; Jerdon, *op. cit.* ii. p. 319.

After comparison made with our European examples, I have not a doubt that the Himalayan bird belongs to the same species ; for the distinction is chiefly based upon the difference in the dimensions, and these do not maintain any constant discrepancy, as will be seen from the following measurements :—

	Male shot, March 1824, near Turin.	Male from Switzerland, in exchange from Dr. Schinz.	Female from Rogi.
Bill in a straight line from angle of the mouth . . . }	2"	2" 4'''	2"
Wing	10" 9'''	11" 9'''	11" 6'''
Tail	5"	5" 4'''	6"
Tarsus	2"	2"	2"

* [First named by Mr. Gould in *P. Z. S.* 1860, p. 206, and then more fully described in 1862.—Tr.]

MUNIA MALABARICA (L.). Sachatti (November).

PASSER INDICUS, Jard. et Selby. Kotegurh, Kangsar.

PASSER CINNAMOMEUS (Gould). Kotegurh (winter), Gaora.

EMBERIZA CIA, L. Kotegurh, Rogi, Simla, Pangi, Kyelang (June).

EMBERIZA STEWARTI, Blyth. Wangtu, Pangi, Rogi, Urui, Kotegurh (winter).

A very fine series of specimens displays the transitions in the male from young to full plumage.

EMBERIZA FUCATA, Pall. Serahan, Tranda, Gaora.

MELOPHUS MELANICTERUS (Gm.). Kotegurh, Nirth, Rampoor.

A young specimen (from Rampoor) is smaller than the adult female (length of wing 2" 9''); the cap is but slightly developed ; the wing-coverts are not rust-red, but for the greater part brown bordered with rust-yellow ; the tail is brown, only a little red being seen on the inner webs of both the outermost feathers near to the shaft and towards the tip.

HESPERIPHONA ICTERIOIDES (Vig.). Kotegurh (winter).

PYRRHULA ERYTHROCEPHALA, Vig. Kotegurh (winter).

CARPODACUS RUBICILLA (Güldenst.). Below the Parang Pass, Ankhang.

CARPODACUS ERYTHRINUS (Pall.). Kotegurh (winter only), Pangi (summer), Chamba, Serahan, Sisu in Labul (June).

Both sexes in summer and winter plumage.

PROPASSER RHODOCHLAMYS (Brandt). Kotegurh (winter).

PROPASSER RHODOCHROUS (Vig.). Kotegurh (winter only), Narkanda.

Whether the old male sent does not belong to *P. pulcherrimus*, Hodgs., cannot be decided without comparison with authentic examples of that species.

CALLACANTHIS BURTONI (Gould). Kotegurh (winter).

CARDUELIS CANICEPS, Vig. Kotegurh (winter), Kyelang (June).

CHRYSOMITRIS SPINOIDES (Vig.). Kotegurh (winter), Nirth, Pangi.

METOPONIA PUSILLA (Pall.). Kotegurh (winter), Kyelang (June).

LINOTA BREVIROSTRIS, Gould. Lake Gyagar in Rupshu.

Our example is only to be distinguished from the European *L. montium* by possessing a stouter bill and being paler-coloured.

MONTIFRINGILLA HÆMATOPYGIA, Gould. Lake Gyagar, Chumig-Kiarsa.

M. hæmatopygia, Gould, P. Z. S. 1851; *Idem*, Birds of Asia, pt. iii. t. 15.

MONTIFRINGILLA ADAMSI, Moore. Marselang, Taglang.

FRINGILLAUDA NEMORICOLA, Hodgs. Kotegurh (winter only), Karoo, Rangdum-Gonpa, Zingzingbar.

In most of the examples the feathers of the occiput are dark, bordered with reddish; but there are some specimens which show gradual transitions to a uniform red crown; among these last is an individual from Karoo, which is also distinguished by having a redder breast, and the feathers above edged with a lively rust-yellow.

CALANDRELLA RAYTAL (Buch. Hamilton). Camp Lama Yuroo.

OTOCORIS PENICILLATA (Gould). d'Zala.

ALAUDA GULGULA, Franklin. Islamabad (September).

PALÆORNIS SCHISTICEPS, Hodgs. Kotegurh (winter), Urui.

The young bird from Urui is not nearly full-grown. Its entire length is $10\frac{1}{2}''$, that of wing $5'' 9'''$, and of the tail $5\frac{1}{2}''$. On the head the grey is wanting; still the space which should be occupied by that colour is for the greater part defined by a darker green. The black throat-bands are wanting. The bill is of a dark brown instead of being red.

PALÆORNIS ROSA (Bodd.). Kotegurh (winter).

PICUS HIMALAYENSIS, Jard. et Selby. Budrawar, Kotegurh, Simla, Mahasu, Pangi.

PICUS BRUNNEIFRONS, Vig. Kotegurh, Gaora.

The red on the back of the head is wanting in the female from Kotegurh.

GEVINUS SQUAMATUS (Vig.). Kotegurh (winter), Pangi, Gaora.

A male and a female from Pangi are somewhat smaller; and the abdominal markings extend over the breast and reach upwards to near the throat. Judging by analogy, and by what we find in the European Green Woodpecker, both these specimens must be of young birds.

PICUMNUS INNOMINATUS, Burton. Kotegurh (winter).
Vivia innominata, Jerdon, *op. cit.* i. p. 300.

MEGALÆMA VIRENS (Bodd.). Kotegurh (winter).

CUCULUS CANORUS, L. Pangi, Matiana.

CUCULUS POLIOCEPHALUS, Lath. Pangi.

A specimen in rufous plumage.

COCCYSTES MELANOLEUCUS (Gmel.). Serahan, Urui.

SPHENOCERCUS SPHENURUS (Vig.). Kotegurh, Gaora.

ALSOCOMUS HODGSONI (Vig.). Kotegurh, Pangi.

PALUMBUS CASIOTIS, Bonap. Kotegurh (winter).

COLUMBA INTERMEDIA, Strickl. Kotegurh, Pangi.

TURTUR MEENA (Sykes). Pangi.

TURTUR CAMBAYENSIS (Gmel.). Kotegurh (August).

TURTUR SURATENSIS (Gmel.). Kotegurh.

TURTUR RISORIUS (L.). Kotegurh*.

LOPHOPHORUS IMPEYANUS (Lath.). Kotegurh.

CERIORNIS MELANOCEPHALA (Gray). Kotegurh (winter).

Among the specimens sent is an old male in winter plumage, with the throat-lappets and the horns not developed, an old female, and a young male of the second year in winter plumage,

* Dr. Stoliczka received a pair of *Pterocles fasciatus* (Scop.) from Mr. Gneg [*qu. Greig?*], which were obtained on low hills at Derbant on the Indus.

in which the red on the nape and breast is commencing, and in which otherwise the transition from the female to the male dress is beginning.

PUCRASIA MACROLOPHA (Less.). Kotegurh (winter).

PHASIANUS WALLICHI, Hardw. Kotegurh?

GALLOPHASIS ALBOCRISTATUS (Vig.). Kotegurh (winter).

FRANCOLINUS VULGARIS, Steph. Kotegurh (winter).

CACCABIS CHUKAR (Gray). Kotegurh.

Hardly separable from *C. græca* (Briss.).

ARBORICOLA TORQUEOLA (Valenc.). Kotegurh.

COTURNIX COMMUNIS, Bonnat. Kotegurh.

ÆGIALITIS PYRRHOTHORAX (Temm.). Kyangsisa.

TOTANUS GLAREOLA (L.). Lake Gyagar.

GALLINAGO SCOLOPACINUS, Bonap. Kotegurh.

CASARCA RUTILA (Pall.). Puga.

AYTHYA NYROCA (Güldenst.). Sirinagur (September).

STERNA HIRUNDO, L. On the Indus near Puga.

XXVII.—*On the Ornithology of Palestine.* Part VIII.

By the Rev. H. B. TRISTRAM, M.A., LL.D., F.R.S., &c.

[Concluded from page 215.]

THE *Otididæ* are very scantily represented. *Otis tarda* is said to be found on the Plain of Sharon; I fear it is becoming as scarce there as in Norfolk, and must almost be reckoned with the things that were. However, it is still plentiful on the plains of Northern Syria. Russell (Nat. Hist. Aleppo, ii. p. 202) mentions *Otis arabs* among the birds of Syria; but I can find no trace of this African species in the east, except the statement of Edwards (appended to his admirable plate published in 1743) that Sir Hans Sloane had one alive for many years, which was brought from Mocha. Russell's bird is no doubt the Houbara, which is very common in the Jordan valley, where I have seen it day after day in small flocks, but never succeeded in getting

within shot, except when without a gun. As *O. macqueeni* and *O. houbara* are now, I believe, admitted to be synonymous, I need not be troubled with the identification of a bird so familiar to me in North Africa. The favourite food of the Houbara appeared to be the desert-snails so abundant on the scrubby vegetation of the plain. The Little Bustard (*Otis tetrax*) is known to be a vernal visitant in a very different part of the country, the maritime plains; but we did not meet with it; in fact we did not work that district at the proper season. Our head servant, a good shot and keen sportsman (no ordinary accomplishment in a Greek), knew the bird well, and assured me he had often killed it.

Very home-like to the East-Anglian members of our party was the cry of *Ædicnemus crepitans*, heard night after night close to our tents near Jericho, on the same plains that rear the Houbara. We obtained many, as well as several eggs, and found the birds to be of the full size of English specimens, unlike the Indian, which, so far as I have examined them, are invariably so much smaller as to excite my suspicion that Dr. Salvadori was right in distinguishing them specifically as *Æ. indicus*, or that they are at least a distinct race. I also met with *Æ. crepitans* on the sand-dunes near Beersheba.

The other grallatorial birds call for little remark, as, though very numerous both in species and individuals, I have little to note that is not trite and familiar. *Cursorius gallicus* we met with occasionally on the coast, where Mr. Cochrane shot the finest specimen I ever saw. *Pluvianus ægyptius*, I fancy, is only a straggler from the Nile; for though Mr. Herschell possessed one he shot in the Jordan valley*, this is the only recorded instance of its occurrence. The Pratincole (*Glareola pratincola*) disappears in winter, but returns in great numbers to all the marshy plains in spring, when we found them on their breeding-grounds, where they can be shot in any numbers, as they keep hovering over the intruders, undismayed by repeated discharges of the gun. As in Africa, they lay their eggs in a footprint in the barest spots. *Glareola nordmanni* did not occur to us. The Grey and Golden Plovers (*Squatarola helvetica* and *Charadrius*

* Ibis, 1862, p. 279.

pluvialis) and the Lapwing (*Vanellus cristatus*) are found in the plains and cultivated lands by thousands, but of course only as winter visitants.

The southern deserts are the resort in winter of another group of species—our common Dotterel (*Charadrius morinellus*), *C. leschenaulti*, and *C. pyrrhothorax*. I accept Mr. Blyth's rectification (Ibis, 1867, pp. 163, 164) of my synonymy in a former paper (P. Z. S. 1864, p. 450) for both these last species. No description can give any idea of the continuous flocks which overspread the whole of the southern wilderness during three days' ride from the Arabah to Beersheba. This is not strictly *desert*, but is the "hill-country" or pasture-land of the Old Testament. Hour after hour the birds ran almost among our horses' feet, and we shot as many as we required for the day's provision within half an hour. There were about ten of the Common Dotterel for one of the other species; but all seemed mingled indiscriminately. With them were all the Desert-Larks, rising sometimes in clouds, and here and there a Sea-Gull, strangely out of place in such a landscape. But the myriads of *Helices*, clustering on all the bushes and on every straw, till the whole looked like a sheet of white blossom, no doubt provided sustenance for all. These shells were of more than a dozen species, but all white.

To my former list (P. Z. S. 1864, p. 450), I must now add the true *Charadrius asiaticus* of Pallas, of which I shot a specimen on the shore near Acre in winter, where *C. pyrrhothorax* was pretty common, and especially near the Kishon, generally in company with larger flocks of the universal *Ægialitis cantianus*. The latter breeds in several places in Palestine. *Æ. minor* is much less common; but we obtained it several times on the Kishon, and doubtless it is found on other gravelly spots throughout the country. I think I saw it more than once on the shores of the Lake of Galilee, running with the Kentish Plovers. There, too, in spring I shot, out of a small flock, a specimen of *Æ. hiaticula*, which we also found in winter on the coast. It breeds on the Upper Jordan, near Hermon, but is the scarcest of its group in winter.

The most interesting of the Plover tribe was the Spurwing

(*Hoplopterus spinosus*), which returns as most of its congeners are leaving, and spares no pains, by voice and action, to make its arrival known. We found it everywhere in pairs, by streams or in marshy lands, where it was evidently breeding, though we never lighted on a nest. Its habits as an Egyptian bird are too well known to require particularizing here.

Grus cinerea was the only species of Crane we observed, and that only in winter. At Moladah, about thirty miles west of the south end of the Dead Sea, we chanced to camp close to a roosting-place of Cranes. Hard work and, I hope, a good conscience made us sound sleepers; else the din of the Cranes might have roused an Ephesian. Towards sunset these enormous birds began to return homewards, flying in order, like geese, with outstretched necks, keeping up a ceaseless trumpeting; but, unlike Rooks, they were not all early to bed; for fresh arrivals seemed to pour in for several hours, and the trumpeting continued till morning, with only an occasional lull. The howl of some wandering Jackal would rouse the whole camp; then, after a slight pause, the wail of an Hyæna evoked a deafening chorus; and before daylight began an angry discussion, perhaps on the next day's journey. Parties of some hundreds departed for the south with the dawn; others remained, probably to make up for their broken slumbers, till the sun had risen for a couple of hours. The roosting-place was a group of hillocks covering several acres, and was covered with the mutings of the birds as thickly as the resort of any sea-fowl. It had evidently been occupied for years. I have no reason to think that the Crane ever breeds in Palestine. We did not meet with the Demoiselle (*Anthropoides virgo*), though it ought to occur, being common both east and west of this latitude.

Not even Lac Halloula, in Algeria, can rival the marshes of Huleh (Merom) as a paradise for Herons—with this advantage, that the breeding-places are wholly inaccessible to man. That treacherous swamp, extending for seven miles, with its deadly malaria, affords a secure haven, under its waving tufts of papyrus, for any number of heronries. Sometimes we heard the booming of the Bittern (*Botaurus stellaris*). As we plunged

through the rushes on the outskirts of the floating bog, the Little Bittern (*Ardetta minuta*) was flushed every few minutes, while far in we saw large flocks of Buff-backs (*Ardea coromandra*), and smaller ones of Squaccos (*A. ralloides*), going and coming like Rooks over the papyrus-tracts. There it was impossible to approach them. The Night-Heron (*Nycticorax griseus*) kept more on the outskirts of the swamps, just as I have seen him in Algeria and Tunis, in small bands; while the Common and Purple Herons (*Ardea cinerea* and *A. purpurea*) were, in the daytime at least, less gregarious in their movements, but rose singly at all sorts of unsuspected corners. The Little Egret (*A. garzetta*) was common, but scattered, and not very sociable; while the Great White Egret (*A. alba*) was scarcer and very wary, generally in parties of from three to six together. But if the nature of the marshes rendered the heronries here impregnable, we were able to secure specimens of all the species when they were incautious enough to seek a fish dinner in the Lake of Galilee. By Ain-et-Tîn, at the northern corner of the Plain of Gennesaret, is a beautiful little marsh of papyrus and oleander. No greater treat could be afforded an ornithologist than to watch the great White Egrets quietly stalking along the little stream that runs through the swamp, as they fished their way; and here we used to lie in wait till we had completed our file of *Ardeidæ*. All the white species appeared to be only spring and summer visitants; but *A. cinerea* and *A. purpurea*, and the Bitterns, are scattered throughout the whole country in small numbers at all times of the year. Dr. Jerdon seems to doubt the fact of the various species of Herons breeding, as they do in Algeria and Palestine, on tufts of reed, observing, "this is quite opposed to the habits of all the Egrets" (B. Ind. ii. p. 745). It may be so in India when they can find trees convenient; but it is unsafe to draw conclusions from too small an induction, and in these regions there are no trees suitable for them within accessible distance of their feeding-ground*. Even in Ireland

* [We have been informed, on very good authority, that even in England our common *Ardea cinerea* of old time used to breed in the fens, and that there was a large heronry near Whittlesea, in Huntingdonshire, and another at Feltwell, in Norfolk; in the first the nests were built among reeds, in the last on low sallow-bushes.—ED.]

I have known the Common Heron breed close to the ground on the islands of the Shannon.

The Glossy Ibis (*Falcinellus igneus*), that common attendant of the Herons, which we used in Africa to compare to the black sheep in a flock of white ones, appears to be very rare in Palestine, and I only once saw it. The Spoonbill (*Platalea leucorodia*) is equally rare, and merely a straggler.

The White Stork (*Ciconia alba*) is a regular though only a passing migrant. During the whole of April it covers the land, suddenly appearing in the south, and moving northwards a few miles a day. Thus we were told, by some travellers who came up to Gennesaret, that the whole country about Samaria was covered with Storks. Two days afterwards they overspread our neighbourhood, not close together, but scattered over hill and valley, plain and marsh alike, steadily quartering the ground, seldom near one another, but generally about a hundred yards apart, picking up snakes, lizards, frogs, or fish, according to the locality. Just after this I had occasion to make a six days' journey to the south-east. The Storks were everywhere, among rocks on the hills, in oliveyards, sandy plains, on the dunghills of villages, on the top of Nebo; they remained apparently till they had cleared off the reptilian harvest, and departed for the north as suddenly as they came. A very few pairs here and there remain to breed, notably among the ruins of Gerash and Amman, perhaps also at Cæsarea. They showed great confidence in man, and are never molested by the natives.

The Black Stork (*Ciconia nigra*) is very different in its habits. It is found all through the winter in small flocks on the barren plains by the Dead Sea, never visiting the upper country. I was told that they build in the oak trees in Bashan, but did not meet with them in my hasty ride through that country.

Of the *Scolopacide* I may say, shortly, that we obtained nearly every species on the European list during the winter, but that scarcely any remain to breed. The Avocet (*Recurvirostra avocetta*) is a resident, but very scarce; the Stilt (*Himantopus candidus*) is not unfrequent in shallow waters, and breeds on a small marshy lake in the centre of the country near Jenin. Both these remain throughout the year. Curlews we often

saw, but never obtained. *Numenius arquata* was certainly one species on the coast; but whether the other smaller bird was *N. phæopus* or *N. tenuirostris* I cannot say. The Sanderling (*Calidris arenaria*), Greenshank (*Totanus glottis*), Wood Sandpiper (*T. glareola*), Green Sandpiper (*T. ochropus*), Redshank (*T. calidris*), Dunlin (*Tringa alpina*), Curlew-Sandpiper (*T. subarquata*), Little Stint (*T. minuta*), Common Sandpiper (*Actitis hypoleucos*), Woodcock (*Scolopax rusticola*), Snipe (*Gallinago media*), Jack Snipe (*G. gallinula*), and *Totanus stagnatilis* were all obtained by us,—*Totanus ochropus*, which was very common as late as June, long after all the others had left. Several of these species we found on the Dead Sea, and at its southern end. On one occasion Mr. Upcher brought down a *Bubo ascalaphus* and a Woodcock by a double shot, out of a cave high up in the side of a bare and treeless dry ravine, out of which they were startled by my shooting a Wall-Creeper (*Tichodroma muraria*).

Of the *Rallidæ*, the Cornerake (*Crex pratensis*), Water-Rail (*Rallus aquaticus*), Water-hen (*Gallinula chloropus*), Coot (*Fulica atra*), and *Porphyrio hyacinthinus* are all permanent residents, *Crex pratensis* in particular being universally diffused and met with at all seasons. The smaller Crakes, *Crex porzana* and *C. pygmaeus*, we did not find, though they doubtless exist in suitable localities.

We were rather surprised at bringing down a Flamingo (*Phoenicopterus antiquorum*), in fine adult plumage, on the Kishon, near its mouth, where there is scarcely any cover, and where a few were generally to be seen in winter. We also occasionally saw a flock high in the air elsewhere, but never discovered their breeding-place, though in July a very young bird was shot close to the place where we procured our first specimen.

Cygnus olor, though common in Greece and Egypt, I did not procure; but a fine adult specimen of *Cygnus ferus* was brought to me in the flesh at Jerusalem, on December 26, through the kindness of Dr. Chaplin, our medical missionary there. It had been shot on the Pool of Solomon two or three days before. I believe this is by far the most southern locality yet quoted for the species. I found, however, that the Swan was known by name and sight to our Arabs, who of course did not discrimi-

nate the species. Of other *Anatidæ*, *Chenalopez ægyptiacus* is not uncommon both on the coast and by the Dead Sea, near which latter we found also *Casarca rutila*, in winter, and were also fortunate enough to obtain its eggs in a cliff in Northern Galilee among some Griffons' (*Vultur fulvus*) nests in May. The most common Ducks on the Jordan in winter were *Fuligula ferina* and *F. nyroca*. The former was also very common all along the Dead Sea, swimming on its surface for purposes best known to itself. The latter we often saw long after the Pochards had left. *Anas boschas*, *A. crecca*, and *Mareca penelope* were common everywhere. We also obtained *A. strepera*, *A. acuta*, *Rhynchaspis clypeata*, *Fuligula cristata*, and *Mergus serrator* in various parts of the country, the latter being very abundant along the seashore. *Mergus albellus* was once obtained on the coast. *Anser segetum*, *Bernicla brenta*, *Fuligula marila*, and *Cedemia nigra* also occurred on the coast, while *Erismatura mersa* might be seen on the Lake of Galilee diving about at any time of the year, and doubtless breeding in the marshes of the Huleh. But the most interesting of the duck tribe was *Anas marmorata*, which we found only in the Huleh, and in great numbers, though very wary and breeding there in places wholly inaccessible. In June it was the only duck we could find there, excepting a stray Teal and now and then a *F. nyroca*, while hundreds of this rare Marbled Duck rose as we approached the openings in the swamps, but always out of shot.

The Sea of Galilee is remarkable for the vast numbers of Grebes, Gulls, and Terns which cover its surface in winter and early spring, while after April not a solitary example of a Natator can be detected. Well may birds swarm there, for the shoals of fishes are almost incredible. Masses of fishes covering an acre or two may be seen with their back fins above the water, looking, as they move slowly in serried ranks, like the pattering of a heavy shower on the lake. Why all the birds disappear in May can only be accounted for by the absence of any secure breeding-places near the lake, the shore being open, destitute of trees, marshes, or other cover, and, on the east side, forming a long bare range of bleak hills which come almost down to the water's edge. This we noticed, that none of the

birds quitted the lake until after they had assumed the full breeding-plumage. In the month of March its placid surface was dotted all over by Grebes, dispersed in every direction, with here and there a White-headed Duck (*Erismatura mersa*), quietly dipping and diving as we approached the shore or as our boats glided near them.

The only three species of Grebe were *Podiceps cristatus*, *P. nigricollis*, and *P. minor*. Perhaps the second was the most numerous, though all were in amazing numbers. Some had assumed the breeding-plumage at the beginning of March; indeed I got a Great Crested Grebe, with the finest tippet I ever saw, on the 29th of February. The Eared Grebes are large, a trifle larger than Algerian specimens, and very much larger than South-African*. These two quietly move up the Jordan to the marshes of Merom to breed, while the Little Grebe is dispersed more generally in all the nooks and corners of the country; I have found its eggs in a piece of water no bigger than a horsepond.

The inhabitants of Tiberias have a curious version of the old Bernacle story adapted to the Grebes. There is a fine *Unio*, very solid and oblong, *U. terminalis*, found in the lake. Knowing we were looking for eggs, the fishermen brought us one morning a great basket of these mussels, assuring us they were Grebes' eggs! They gravely maintained their assertion, which we found was the common belief, on the ground that no one ever found any other Grebes' eggs, that the Grebes were constantly diving down in the part where these shells were, and for what else could they dive but to lay these eggs? and, finally, if they were not Grebes' eggs, and being sat upon by the Grebes under water, what had become of the Grebes? for no one ever saw them from the beginning of breeding-time till the summer, when they reappeared from the bottom with their young families! This was surely conclusive!

In winter we found all these species of Grebe also on the Dead Sea, especially near the mouth of the Jordan, where they feed on the fry that are carried down, and which soon become "red herring alive" in the briny solution of the lake.

* [*Vide antea*, p. 263.—ED.]

The Gulls and Terns are equally abundant with the Grebes in the winter and spring on the Sea of Galilee. From morning to night they pass and repass up and down its short length—the magnificent *Larus ichthyæetus* in particular making the circuit of the lake close to the edge and always within shot, as though to keep himself in exercise. We got this royal Sea-Gull, in the finest possible plumage, in the month of March. Where they go to breed I cannot say; they certainly do not breed in Palestine; probably they take an easy flight to the Red Sea and enjoy their spring among its coral-reefs*. In fact we could not find a trace of any Gulls or Terns breeding in the country, except *Sterna hybrida*, in the Huleh marshes.

I have seen no figure or description which does full justice to *Larus ichthyæetus* in breeding-plumage. The bill of one I shot on the 29th of February was a rich orange from base to tip, with a black bar across both mandibles near the tip, analogous to the black bar across the coral-red bill of the Mediterranean Gull (*L. melanocephalus*). The tarsi and feet were rich yellow with a greenish tinge, not flesh-coloured, which I imagine is the livery of the younger bird; and there is a purity and distinctness in its plumage unrivalled, I think, in any other Gull. I also obtained *L. ichthyæetus* in winter plumage near the mouth of the Kishon in December. The most abundant Gull on the Lake of Galilee was *Larus audouini*, which we obtained also on the Dead Sea, all along the Jordan, on the Mediterranean coast, and even, as mentioned above, in the southern wilderness. *L. fuscus*, *L. canus*, and *L. ridibundus* are also found on the Lake of Galilee, and were met with in plenty on the coast in winter. The commonest coast Gull is *L. argentatus*, or rather that small variety of it distinguished as *L. leucophæus*, Licht. The rare *L. gelastes*, Licht., and *L. melanocephalus*, Temm., were also on the coast, but we did not meet with them on the inland waters.

Of the Terns, *Sterna velox*, not observed by us on the coast, and *S. hybrida* remain in small flocks on the Sea of Galilee, till they acquire the breeding-plumage, when *S. velox* disappears

* [It may be inferred from Pallas's account (Zoogr. R.-As. ii. p. 323) that they breed on the shores of the Caspian Sea. (Cf. P. Z. S. 1867, pp. 166, 167).—ED.]

and *S. hybrida* retires to the marshes of Huleh for nidification. The only other species obtained were *S. anglica*, on sand-spits and small lagoons north of Beyrout, *S. caspia*, *S. nigra*, and *S. minuta*. The Mediterranean Shearwater (*Puffinus barolii*, Bonelli), so like our own *P. anglorum*, and scarcely differing except in its brown-black plumage, may be seen skimming along shore, and I picked up one under Mount Carmel. Both species of Pelican are recorded among the birds of Palestine; but *Pelecanus crispus* was the only species that came under my own observation. I saw adult specimens of both in a local collection at Beyrout, and there is no reason to question their claim to a place in the list. *Phalacrocorax carbo* is very abundant on the coast, and also regularly visits the mouth of the Jordan, where I little expected to meet with him, sitting on a "snag" and watching for the stupefied fishes. The only other species of Cormorant met with was *P. pygmaeus*, on the Leontes and other streams flowing into the Mediterranean. We did not observe it on the Jordan, where, however, it might easily have escaped our notice.

The Ostrich, *Struthio camelus*, only claims a place in the fauna of Palestine by its occasional appearance in the Belka, on its south-east extremity, where it is a straggler from Central Arabia. Xenophon speaks of its abundance in his time in Assyria (Anab. i. cap. 5); and we have traditional accounts of its former existence as far east as Scinde. All the other wild animals named by Xenophon are still found in the region of the Euphrates and Tigris—a fact which makes the rapid retrocession of the Ostrich the more remarkable. But, from the very frequent reference to this bird throughout the Scriptures of the Old Testament, it was evidently familiar to the Jews, and, no doubt, roamed through the southern wilderness and Arabia Petræa as well as on the eastern frontier. I possess a portion of an Ostrich's skin (the back, neck, and wings), intended for a sort of mat of state, which had been captured in the Belka by the Sheikh Aghyle Agha, and given by him to my friend Mr. T. B. Sandwith, when Consul at Caiffa.

My notes have now embraced 329 species. Closer research will no doubt add many more to the list; but a catalogue of over

300 species in one small district of the Mediterranean basin, comprising 27 peculiar and 9 new species, affords ample encouragement to our ornithologists to complete the investigation, and to work out the avifauna of Asia Minor, Northern Syria, and the Euphrates-valley, of which our knowledge is almost a blank.

In the course of these papers it will be observed that I have had to make several corrections in, and additions to the list published by me shortly after my return (P. Z. S. 1864, pp. 426-456). The principal corrections are the omission (*Ibis*, 1866, p. 283) of *Cuculus libanoticus*, then described as a new species, but of which I now feel very doubtful; the identification (*tom. cit.* p. 291) of *Motacilla lugubris*, Temm., with *M. vidua*, Sund., the substitution (*tom. cit.* pp. 291, 292) of *Cinclus albicollis*, Vieill., for *C. aquaticus*, Bechst., var.?, the correction (*op. cit.* 1867, p. 79) of *Cettia sericea*, Bp., to the new species *C. orientalis*, and (*antea*, p. 331) of *Puffinus anglorum* to *P. barolii*, Bonelli. The additional species given are *Sitta casia*, Mey. (*op. cit.* 1866, p. 285), *Drymæca eremita*, sp. nov. (*op. cit.* 1867, p. 76), *Sylvia bowmani*, sp. nov. (*tom. cit.* p. 85), *S. doriæ*, De Filippi (*tom. cit.* p. 84), *Charadrius leschenaulti*, Lesson (*antea*, p. 323), and, perhaps (*op. cit.* 1866, p. 286), a *Melanocorypha*, as yet unnamed by me, but closely allied to *M. calandra*.

As to the general conclusions deducible from a review of the Palestine avifauna, I indulged in various speculations in the first paper of this series. These I need not repeat; but I would call attention especially to the fine illustrations which Palestine affords of the fact that as zones of elevation or mountains correspond to parallels of latitude, the higher zones corresponding to the higher latitudes, so here a zone of depression, the only one of any importance known to us, produces similar phenomena, and exhibits, in generic correspondences, specific representations, and, in some cases, specific identities, the avifauna of lower latitudes. The Ethiopian and Indian forms are almost exclusively confined to the deep depression of the Dead-Sea basin, which, with the exception of some winter migrants, affords very few Palearctic species.

Of the 36 birds pertaining to the Ethiopian avifauna, 16 species have not been found in Palestine out of the Dead-Sea

basin. As to the occurrence of desert species, no difficulty can arise, especially in the case of such as extend through the whole belt of sandy waste which girdles the Old World from Scinde to the Atlantic coast of Africa.

The most interesting of the Indian non-Ethiopian species is *Ketupa ceylonensis*; and the occurrence of this great fish-eating Owl is the more exceptional, as there are no *Strigidae* in Africa bearing the least affinity to this well-marked genus, and since it has not yet been found in the Jordan valley, but only sedentary by the streams of the coast. *Alcyon smyrnensis* and *Turtur risorius*, which are both sedentary in the Jordan valley, are the only other instances of so great a westward extension of purely Indian forms; but both have appeared as stragglers in Asia Minor, whence the former was known to Linnæus, but lost to science till recently rediscovered there by Capt. Graves, R.N.

Of the 27 species classed as new or peculiar to Palestine, 11 are merely modifications or representative forms of familiar types, and are all found in the upper country or on the coast. Such are *Garrulus melanocephalus*, *Picus syriacus*, *Cettia orientalis*, *Saxicola eurymelæna*, and *S. amphileuca*. Several of the other new species are closely allied to known desert or oriental forms, and are found beyond the limits of the Dead-Sea basin. Such are *Hypolais upcheri*, *Petronia brachydactyla*, and others. One, *Ruticilla semirufa*, inhabiting the hill country, is clearly an affine of the Indian *Ruticillinae*, and not of the Ethiopian or Palearctic members of the genus. But there are 11 species, belonging to as many different genera, peculiar to the Dead-Sea basin, and not yet traced beyond its limits. Some of these belong to genera exclusively Ethiopian, most of them to genera common to the Ethiopian and Indian regions; but the affinities of two at least are Indian and not African. *Caprimulgus tamaricis* is, perhaps, most closely related to *C. asiaticus* of India, but with the characteristic plumage of *C. isabellinus* of Africa. *Passer moabiticus*, another well-marked species, strictly confined to the lower end of the Dead-Sea basin, though it belongs to a genus equally Ethiopian and Indian, yet must undoubtedly be included among the Indian portion of that group. The smallest species known of its genus, in its coloration and other

peculiarities it approximates in some respects to the Indian *P. cinnamomeus*, in others to the *P. russatus* of China, but is not affined to any known Ethiopian *Passer*. *Ammoperdix heyi*, a Partridge limited in its range to the region round the Dead Sea and Arabia Petrea, belongs to a subgenus of *Caccabis*, the only other member of which, *A. bonhami*, is Indian.

Of other peculiar species, *Ixus xanthopygius*, belonging to a genus widely extended through both regions, yet is very close to five or six Ethiopian species, and more decidedly separated from any of its Indian congeners. *Nectarinia osea*, the only one of this numerous genus which reaches so far north, represents a family very numerous in both regions. Though not far removed from *N. asiatica*, it approaches much more nearly to *N. affinis* of Abyssinia. *Crateropus chalybeius*, yet more circumscribed in its range to the lower part of the Jordan valley, above which it never ascends, is one of a peculiarly well-marked genus, comprising about 18 species, all exclusively African, while *Amydrus tristrami* (the last to be named), is one of a restricted group of Starlings, of which the two other species are Abyssinian and South-African. None of the Indian *Sturnidae* have any near affinities with this genus.

We are naturally led to speculate on the means by which this narrow region became peopled. That it was by special creation within this area, or that its inhabitants can have had an independent origin on the spot, is negatived by the fact of the identity of many species of animal life, and of almost the entire flora, with species now flourishing in the Ethiopian region.

That it was peopled by migration in modern times, or that wandering individuals in search of new homes, finding the conditions adapted for their existence, settled and colonized, and, in the case of birds, abandoned their migratory habits, is met by the fact of the coexistence of peculiar forms with others now found in regions remote from the colony. Besides which, there are species which, making due allowance for all probable modes of migration, could scarcely have been transported thither under present conditions, since either their physical character or the phenomena of their present distribution forbid such a supposition. We are thus led to the hypothesis that these species arrived

by migration or general dispersion before the surrounding region presented the existing obstacles to their transport.

This must at least have been after the close of the Eocene period, to which belong all the most superficial deposits of southern Palestine. It must have been before the Glacial epoch, which has left traces of its effects over the whole country. Before this period we have reason to believe a warm period occurred. The fauna and flora of Palestine would then be East-African, either identical or representative. Afterwards, in the period of cold, those species which were most tenacious of life, retiring to the depression of the Jordan valley, then, as now, proportionally warmer than the surrounding land, contrived to maintain the struggle for existence, and have survived to the present day to form "a tropical outlier," of which we have no other terrestrial instances, but parallel with the northern outliers of marine life which occur in the British seas.

In like manner the supervening Glacial period has left its mark in the avifauna of Hermon and Lebanon. It is needless to enter further on this subject, as the question becomes one of geology rather than of ornithology, and I have already treated of it elsewhere. But it is a fair illustration of the way in which the various branches of natural science are interwoven, and of the value of the examination of even a limited geographical area. To me, and to all of us, the great attraction of Palestine-natural exploration must be its connexion with Sacred History, and its bearing on the minor elucidations of Scriptural allusions. But apart from the connexion of the subject with that of the language and expressions of the inspired writers, I venture to hope the readers of 'The Ibis' may have found enough of ornithological illustration in the investigation to excuse the length to which during four years these papers have run on.

XXVIII.—*Notices of Recent Ornithological Publications* :—

1. ENGLISH.

SINCE our last notice of their work* (Ibis, 1867, p. 372) our friends the authors of 'Exotic Ornithology' have issued their

* Exotic Ornithology. By PHILIP LUTLEY SCLATER, M.A. &c., and OSBERT SALVIN, M.A. &c. Parts iv., v. & vi. London. Imp. 4to.

fourth, fifth, and sixth Parts, the subjects illustrated being all selected from the birds of the Neotropical region.

Part IV. contains :—

Myiadestes obscurus.	Hylactes castaneus.
„ unicolor.	Ædicnemus superciliaris.
„ ralloides.	Lanio aurantius.
„ elisabethæ.	„ leucothorax.

The authors (p. 54) express their belief that *Myiadestes* ought to be grouped with the *Turdidæ* rather than with the *Ampelidæ*. This arrangement was strongly urged by Prof. Baird (Rev. Am. B. p. 408), although he placed the genus as a section of a sub-family of *Ampelidæ*. Under *M. ralloides* (D'Orb.), are placed as synonyms *Ptilogonys griseiventris*, Tschudi, and *M. venezuelensis*, Sel., the identity of the first and last having been determined from a comparison of the types. The genus *Myiadestes* seems to be very well represented in the Antilles; but, as is almost universally the case with the natural-history productions of those Isles, our acquaintance with the distribution of the various species is anything but satisfactory. Only the Cuban and Jamaican species are well known; another is supposed to come from Martinique; of a fourth still less is known, while there is more or less evidence of the existence of others in the islands of St. Domingo and St. Vincent. *Ædicnemus superciliaris* was long ago described by Tschudi, but recognized by no subsequent author, the name having been placed by Prof. Schlegel and others as a synonym of the well-known *Æ. bistriatus*, Wagler. The two species, however, are perfectly distinct: one inhabits the eastern plains of the northern portion of the South-American continent and Central America, the other is confined to the Transandean plains of Peru.

Part V. includes :—

Tachyphonus phoeniceus.	Accipiter chilensis.
„ delatirii.	Leucopternis superciliaris.
Xiphocolaptes emigrans.	Geotrygon chiriquensis.
„ major.	„ bourcieri.

Accipiter chilensis is the Chilean race of *A. pileatus* of Brazil, and has been confounded with *A. cooperi* of North America, the young plumage of the two species being very similar. As

the authors have not yet furnished the list of American species of this genus, according to their laudable custom when they have done with a subject, we suppose they have still something more to add respecting it. In attacking the American Pigeons they have set themselves the very difficult task of clearing up the obscure genus *Geotrygon*. The conflicting identifications of Bonaparte and Mr. G. R. Gray will make their labour by no means light. The whole of the American species of *Columba* require a searching revision.

Part VI. comprises :—

Chlorophonia frontalis.	Crypturus sallæi.
„ longipennis.	„ boucardi.
„ occipitalis.	„ meserythrus.
Melanotis hypoleucus.	Tigrisoma cabanisi.
Tinamus robustus.	

The Tinamous figured are all from Central America, north of the Isthmus of Panama, and are, perhaps, all that have hitherto been discovered in that region. We say “perhaps,” because Lesson’s *Tinamus cinnamomeus* and Bonaparte’s *T. delatirii* may be species distinct from *Crypturus sallæi*, though the matter is open to doubt. Still our friends have, probably, used a wise discretion in not rejecting the name *sallæi*, about which there can be no doubt, for either Lesson’s or Bonaparte’s appellations, accompanied as they are by such insufficient descriptions, to which no dimensions are appended. *Tigrisoma cabanisi*, a very distinct species, was described by Herr F. Heine, as long ago as 1859; but the description seems to have been overlooked till Prof. Schlegel included the bird in his ‘Muséum des Pays-Bas.’ Its range seems to be strictly confined to Central America.

As Eton claims precedence over the other public schools of England, it is fitting she should show that in all branches of human knowledge the pretension is well grounded; and certainly it must be admitted that she has now distanced her rivals in the matter of Ornithology, though we do not forget that Harrow led the way with the meritorious little essay of the Messrs. Bridgeman, which we noticed more than three years ago (Ibis

1865, pp. 222, 223). Mr. Kennedy has produced a work so creditable * that he must forgive us if we, in criticizing it, refuse "that indulgence which," he tells us, "is naturally looked for by an author of sixteen," and, regarding him as one of riper years, disallow him even the excuse of a "first fault." Where he has erred, however, it is almost entirely through following bad examples set him by those who ought to have known better; for instance, he includes (p. 154) the Golden Eagle, as a bird of Berkshire, partly on the word of Mr. Morris, who, in his 'History of British Birds' (vol. i. p. 20) asserts that an individual of this species was killed in the county. Mr. Morris, according to his custom, does not cite his authority for the statement; but if any one will take the trouble to refer to the passage, he will find it almost a literal transcript from a paragraph in the 'Zoologist' (1847, p. 1695), wherein the editor of that journal unfortunately departed from his usual excellent practice, and admitted to his pages an anonymous extract from a local newspaper, which, of course, is totally valueless as evidence in such a case as this. Every one who has had any experience in these matters knows that whenever an Eagle happens to be murdered in an English county, the purveyors of provincial intelligence almost invariably announce it as a Golden Eagle, though in ninety-nine cases out of a hundred it is, naturally, the commoner species. It is certainly possible that Mr. Kennedy has investigated this instance; but if so, he should have told us he had, and thus relieved himself from the obloquy of being even the innocent victim of a mischievous compilation. Mr. Kennedy, we must state, successfully invalidates a second similar assertion; but he gives currency to a third, which seems to us to require proof that the gamekeepers concerned were able to discriminate between species of the genera *Aquila* and *Haliaetus*. Though there is a pardonable desire on the part of the author to admit species to his book on evidence apparently very slender, we should be misleading our readers if we induced them to suppose that stories of this kind made up a principal part of it. Mr.

* The Birds of Berkshire and Buckinghamshire: a Contribution to the Natural History of the Two Counties. By ALEXANDER W. M. CLARK KENNEDY, "An Eton Boy." Eton and London: 1868. 8vo, pp. 232.

Kennedy shows himself capable of good, honest, original work ; and we are much mistaken if the zeal which has prompted him to the performance of the present promising labour does not before long place him high in the ranks of Ornithologists. Before we part with his book, however, we desire to utter a word of warning to the next author of a county avifauna :—Let him by all means eschew the exceedingly inconvenient practice of arranging the species in four or five categories, “Residents,” “Summer Visitors,” and so on, the effect of which is that one cannot find a species until one knows the character which it assumes in the locality, and that character is probably just the particular thing one wants to know about it. Mr. Kennedy has done the best he can to remedy the inconvenience by supplying a very sufficient index ; and in this, as in several other respects, he deserves great praise.

We are indebted to the kindness of Captain Bulger for a little pamphlet entitled ‘Random Notes on Indian and Burman Ornithology,’ which we are in doubt how to treat. Being privately printed in India (at Bangalore), it is in no sense of the term an “English publication ;” and further, though the donor has considerably informed us who its author is, yet that gentleman appears on its title-page merely as a “Vagrant.” We respectfully entreat naturalists in India, where the practice seems rather extensively to prevail, as witness “Mountaineer,” “The Old Shekarry,” “Ornithognomon,” and others, to lay aside this false modesty, and to confess their own identity. There is no better rule in science than that of disregarding anonymous or pseudonymous personages ; but it is very disagreeable having to ignore them, when they have to give (and this is often the case) interesting information.

A collection without a catalogue is reduced to half its real value ; yet many collectors neglect this necessary adjunct to their possessions—some from not knowing on what principle they should begin, others from not taking the trouble to prepare one.

Mr. J. E. Harting has just brought out a volume* which will exactly meet the requirements of both classes. It is in a quarto form, of writing-paper, ruled with lines horizontally and vertically, the heads of the columns printed for "No. of Specimen," "Name of Species," "Locality and Date," and "Remarks." At the end is room for an Alphabetical Index, by filling up which the owner may at once turn to the page on which his specimens are entered. The volume may be obtained with any number of pages; and Mr. Harting's plan is so simple that it is adapted to any kind of Natural-History Collections, and we can cordially recommend it to Ornithologists as an inexpensive and thoroughly useful assistant.

2. GERMAN.

Not to be behind that of other nations, the Prussian government, in 1860, dispatched an expedition to Eastern Asia. Its object, we believe, was political; but with that, of course, we have nothing to do here. On board the frigate 'Thetis' sailed, as naturalist, Dr. Eduard von Martens, of Berlin; and the first portion of the zoological results of his labours has just reached us†. Though bearing on its cover the date 1865, it would appear, from internal evidence, that the work was not published in that year; and it has only recently been received in this country. The 'Thetis' having put in at Funchal, Dr. von Martens takes the opportunity of treating at some length of the Madeiran birds; but he does not add to the facts recorded by Mr. E. Vernon-Harcourt (Ann. and Mag. Nat. Hist. 2nd ser. xv. pp. 430-438), and has omitted any reference to his countryman, Dr. Carl Bolle's observations on *Anthus bertheloti* ('Ibis,' 1862, p. 343), which is the more surprising, seeing that they were also published in Germany (Journ. für Orn. 1862, p. 357). He speaks (p. 25) of a certain "*Prion brevirostris*, Gould," as occurring in the Madeiras, on the authority of Bonaparte (Consp. Av. ii. p. 194); but as he does not mention *Procellaria mollis*, which

* Catalogue of..... in the collection of..... London (R. Hardwicke, 192, Piccadilly). 4to.

† Die preussische Expedition nach Ost-Asien. Nach amtlichen Quellen. Zoologische Abtheilung bearbeitet von E. v. MARTENS. Erster Band—Erste Hälfte. Berlin: 1865. Roy. 8vo, pp. 192.

we know breeds there in some abundance, we cannot but throw out the suggestion that this last name should be substituted for the first. Such of the birds of the Tropical Atlantic, the Southern Ocean, the Straits of Sunda, and the China Sea as presented themselves to the observation of the author are successively mentioned as the 'Thetis,' after touching at Rio de Janeiro, pursued her course to Japan; and then we have a pretty full account of the ornithology of this last country, including some interesting particulars derived from a Japanese Encyclopædia and other works, in one of which (among, it is true, foreign and fabulous birds) he found (p. 104), strange to say, under the name of "Hoo-dori" an indication of a Struthious species with four toes and spurs besides! Returning southward, the frigate visited some places on the coast of China and Formosa. In the middle of the account of the Philippine Islands the work breaks off, and we look forward with interest to its continuation. Meanwhile we may mention that the author communicated to the 'Journal für Ornithologie' for 1866 (pp. 5-31) a list of the birds of that group; and it is the fact of his referring to that list in the course of the work we have just been noticing that, to all appearance, proves the date on its title-page to be wrong.

There has lately reached us a "Supplement" to the late Herr Bädcker's 'Eier der europäischen Vögel,' which was finished in 1863. Since Dr. Brehm, who was, with Herr Pässler, the joint author of the letterpress to this work, of which a detailed notice appeared in the former series of this Journal (*Ibis*, 1859, pp. 400-415), has been some time dead, we imagine it is to the latter that the authorship of this publication must be ascribed. It gives a few additional particulars of the mode of nidification of some of the species included in the body of the work; but in many cases the writer has not availed himself of the newest information on the subject. Some of our readers, however, may be glad to know of the existence of these supplementary pages, that they may possess the volume in its entirety, and we therefore append in full their title*.

* Die Eier der europäischen Vögel nach der Natur gemalt von F. W. J. BEDEKER. Mit einer Beschreibung des Nestbaues gemeinschaftlich

3. SWISS.

The first part of the second volume of the Swiss Ornithological Society's 'Bulletin'* is entirely devoted to a French translation of Prof. Steenstrup's 'Contribution to the Natural History of *Alca impennis*,' by means of which many of those persons who have not been able to read this admirable paper, either in the original Danish or in the German translation, may become acquainted with it. To this are added, by M. Victor Fatio, a few words on the specimens of the skin and egg of the species existing in Switzerland, and a list of those to be found in Europe. The translation seems to be very accurately done, and M. Fatio's remarks on the Swiss specimens are of some value; but the general list of European specimens is very defective, only fifty-one skins being enumerated, while it is stated that there are sixty eggs and six skeletons. However, those who have made the attempt to reckon up the different specimens will know that it is no easy matter to accomplish, mainly from the reluctance existing in some quarters to supply the necessary information—a reluctance eminently unworthy of those who call themselves naturalists. We believe the number of skins existing does not fall far short of seventy, while there are certainly more eggs and skeletons than is stated by M. Fatio. Still this attempt will probably lead to others, and in a few years we shall probably be in a position accurately to "take stock" of our rarities. A chromolithograph, which, however, we cannot commend, accompanies this publication; and we hope the Society may be induced to continue its labours, so as to furnish a complete monograph of this interesting species.

4. ITALIAN.

In the 'Atti della Società Italiana di Scienze Naturali' (vol. x. pp. 136–144) Count Oddo Arrigoni commences a History of Ornithology, by giving a short account of Aristotle, Pliny,

bearbeitet mit L. BREHM und W. PÄSSLER. Supplement. Leipzig und Iserlohn. (London, Williams and Norgate.) Folio, pp. 16.

* Bulletin de la Société Ornithologique Suisse. Tome ii. 1^{re} partie. Genève et Paris: 1868. (London, Williams and Norgate.)

Pierre Belon, and Conrad Gesner, and of the results of their works as affecting the science. As a part is contained in the whole, ornithology dates from the time of the "Father of Zoology;" and Gesner's 'De Avium Natura' appeared, we believe, in 1555; but Belon was certainly the first pure ornithologist, and his quaint quatrains, first published at Paris in 1557, have, with their woodcuts, long been objects of delight to antiquarian book-worshippers as well as to naturalists, who are actuated by a more scientific, if not a more practical taste. We look forward with much interest to the continuation of Count Arrigoni's 'Storia,' which we trust he will prolong to modern times.

The 'Atti della R. Accademia delle Scienze di Torino' for the present year contain two valuable papers by Dr. Salvadori. The first is on the ornithological labours of the much-regretted Professor De Filippi, and consists of a very careful abstract of and commentary on his contributions to various publications, including identifications, more or less precise, of several species described as new by the deceased naturalist. Among these we may here especially mention, as of interest to our readers, the fact that Dr. Salvadori refers, with some doubt, *Irania finoti*, De Filippi (February 1863), with which *Saxicola albigularis*, Von Pelzeln (October 1863) is unquestionably identical, to *Cossypha gutturalis*, Guérin (Rev. Zool. 1843, p. 163), described from specimens obtained in Abyssinia by MM. Ferret and Galinier, and figured in the account of their voyage (vol. iii. pl. 5). There can, we think, be no doubt on this score; for Mr. Sclater has lately been good enough to show us specimens of this bird sent from the same country by Mr. W. Jesse, the zoologist attached to the happily-concluded Expedition, and they are certainly identical with others obtained in Palestine by Mr. Tristram. The species, therefore, was not figured in this Journal (Ibis, 1867, pl. i.) for the first time as we had thought; and though it may be a matter of opinion whether Dr. Salvadori is right in regarding *Irania* as a genus distinct from *Bessornis*, there is no question but the species will have to bear the name of *gutturalis* bestowed on it by M. Guérin. Dr. Salvadori's second paper is a monograph of the genus *Prionochilus*, of which he recognizes

five species—one, *P. xanthopygius* from Borneo, being described and figured as new.

5. PORTUGUESE.

From Portugal we have received some numbers of the newly-established 'Jornal de Ciencias Mathematicas Physicas e Naturaes,' published under the auspices of the Royal Academy of Sciences of Lisbon. To these Professor Barboza du Bocage contributes three ornithological papers. The first, entitled "A ornithologia dos Açores," is a review of M. Morelet's and Mr. Frederick Godman's works on that subject, the last of which, as our readers will recollect, appeared in these pages (*Ibis*, 1866, pp. 88-109). The author accuses our contributor of having made several serious errors in transcribing the vernacular names of the different species he mentions. That such is the case we do not doubt. Few Englishmen, except port-wine merchants, are acquainted (more's the pity) with the language of Camoens; and surely such mistakes as Mr. Godman has made are very venial! He never boasted any knowledge of the Azorean tongue; and we should like to know how accurately Professor du Bocage could write down the local names of birds dictated to him by a Scillonian, a Manxman, or a Shetlander! The Professor is apparently much puzzled to account for the fact that two species of birds are said to be peculiar to the Azores, when all the rest are identical with European, Madeiran, or Canarian species, and so much puzzled at it that he doubts whether the fact can be as it is asserted. He suggests that *Fringilla moreleti* is identical with *F. tintillon*. On this point we have no remark to make, for we never had an opportunity of comparing the two; but we suppose Dr. Pucheran had when he described the former as distinct from the latter. Professor du Bocage allows that if the male of *Pyrrhula murina* really resembles the female, then it must be distinct from *P. coccinea*. He will, we hope, permit us to assure him that there is no possibility of Mr. Godman having made a mistake in this matter, and that *P. murina* is an excellent species, while we have some doubts whether *P. coccinea* can really be distinguished from the common form of European Bullfinch, of which it seems to be only a

very large race, though we have been informed that the call-notes of the two are unlike each other.

In the second and third papers, Professor du Bocage gives us some very welcome information as to the ornithology of the Portuguese possessions in Africa; and the lists appear to be very carefully drawn up. Some eleven species are described as new; but, on re-investigation, a few of them are referred to previously known forms. A very fine new form seems to be *Pternistes selateri*, of which a figure is given; and there are others not less interesting. We trust we may receive many more instructive papers of this kind from the author, and are extremely glad to find there is much ornithological activity going on in Portugal and her colonies, under the management of Professor du Bocage.

6. AMERICAN.

Since we last noticed Mr. Elliot's 'Birds of North America'* (Ibis, 1867, p. 376) five more parts of it have reached us, each of which contains five plates; but on several more than one species is depicted. The list of them is as follows:—

Part V. (1867):—*Lampronetta fischeri*, *Lophophanes inornatus*, *Macrorhamphus scolopaceus*, *Nephocætes niger*, and *Diomedea chlororhynchus*.

Part VI.:—*Haliaetus pelagicus*, *Zonotrichia belli*, *Brachyrhamphus temmincki*, *Colaptes chrysoides*, and *Phaleris pusilla*.

Part VII.:—*Graculus bairdi*, *Scardafella inca*, *Ereunetes occidentalis*, *Contopus pertinax*, *Larus occidentalis*, and *L. californicus*.

Part VIII.:—*Buteo zonocercus*, *Vireo plumbeus*, *V. vicinior*, *V. swainsoni*, *V. pusillus*, *Brachyrhamphus hypoleucus*, *Dendroica gratia*, *Cymochorea melania*, and *Halocyptena microsoma*.

Part IX. (1868):—*Exanthemops rossi*, *Parus montanus*, *Nectris fuliginosus*, *Xenopicus albolarvatus*, *Mitrephorus fulvifrons*, and *Nectris amaurosoma*.

Under the new name *Exanthemops rossi* we have an old friend better known as the "Horned Wavey" or Little Snow-Goose of

* The Birds of North America. By D. G. ELLIOT, F.L.S., F.Z.S., &c. Parts V.-IX. New York: published by the author, No. 27 West Thirty-third Street, 1867 & 1868. Imp. folio.

Hearne—the beautiful and delicate species of which he says that he “ate two of them one night for supper,” a statement which has given rise to various pleasantries, and even to incredulity on the part of those who do not know how small a Goose may be without becoming a Duck. We think it was hardly necessary merely on account of the “blossom-face” of this species to found for it a new genus; but we will readily forgive Mr. Elliot this time if only in consideration of the pleasure we have in looking at his plate, and also for the sake of the smile provoked by the ingenious name he has invented.

The ornithology of the land chosen by the Pilgrim Fathers has at last met with a monographer in the person of Mr. Samuels, who has produced a volume* which, essentially popular in its character, is compiled with enough scientific precision to contain nothing that need mislead the veriest tyro, and much that may guide him to knowledge. The scope of the work is amply explained in its preposterously long title, which we reprint entire. We can only demur to the illustrations. It is probable they may render the work more attractive to the general public; but that certainly will not be their effect on the ornithologist. Many of the eggs, however, are represented (or dare we say misrepresented?) for the first time; and if in no other light than that, the book is worthy the attention of oologists.

If we are not mistaken, the want of a popular natural-history magazine has long been felt by our friends in the United States. ‘The American Naturalist’ is a very creditable attempt to supply the deficiency, and, we doubt not, will attain a very considerable success, sowing good seed all over the land. It may

* Ornithology and Oölogy of New England : containing full descriptions of the Birds of New England, and adjoining States and Provinces, arranged by a long-approved Classification and Nomenclature; together with a complete history of their Habits, Times of Arrival and Departure, their Distribution, Food, Song, Time of Breeding, and a careful and accurate Description of their Nests and Eggs; with Illustrations of many Species of the Birds, and accurate Figures of their Eggs. By EDWARD A. SAMUELS, Curator of Zoology in the Massachusetts State Cabinet. Boston: 1867. 8vo, pp. 583.

fairly be compared with the 'Magazine of Natural History' as originated by the late Mr. Loudon nearly forty years ago, which, as we all know, has by a series of gradual modifications become the leading biological journal in this country, having experience every now and then of a pretty severe struggle for existence, occasionally swallowing and incorporating a rival, but more often "improving it off creation." Things move faster among our cousins; and it will probably not by any means take forty years to see natural-history literature represented in the United States by more and perhaps better journals than we now have in England. However, letting futurity alone and acting "in the living present," as the American poet advises us, we wish to hold out our hand in welcome of the new magazine. Its first number contains some "Winter Notes of an Ornithologist," by Mr. J. A. Allen, treating of the birds which pass that season in New England, where, however, only fourteen can be said to be at all common—a very great difference from the state of things in the old country, where the same number can be seen almost at once in many a garden or stack-yard of a winter's day—and affording a still more striking contrast to the number of New-England "Birds of Spring" (forming the subject of a subsequent paper by the same author), of which there are no less than one hundred and ninety entitled to be called "common." Mr. G. A. Boardman, whom we know to be an accurate observer, notices (p. 53) the curious fact that he finds on the coast of Maine the Black Guillemot (*Uria grylle*) "in full black plumage all winter."

Dr. Brewer, of whom we are glad to hear after a very long silence, has a paper (pp. 113–123) on "Some Errors regarding the Habits of our Birds," which is well worth reading. He speaks with great impartiality of mistakes committed by Wilson, Audubon, and Nuttall. The first described the nest and eggs of *Carduelis tristis* in such a manner as to render it possible he had before him those of *Polioptila cærulea*, and seems to have been equally incorrect in his account of *Spiza cyanea* and *Euspiza americana*. The last confounded *Empidonax minimus* with *E. acadicus* in a very singular way. Dr. Brewer, like the rest of us, has shortcomings to confess, and a few of these are very freely acknowledged; but we must say that our worthy friend

seems a little too sensitive about a mistake of his own (for such he says it was) corrected in this journal by Captain Blakiston (Ibis, 1863, p. 43), who he states "has seen fit to comment, with some impertinence," upon it. Now we have to complain that Dr. Brewer, by omitting any reference to the passage in question, has contrived to cast a slur upon 'The Ibis' generally, and to place a difficulty in the way of any one desirous of consulting the original, which we discovered only after some considerable search; for he does not even name the writer of it. Our readers will now be able to turn to it; and we shall be exceedingly surprised if they find it liable to the charge of "impertinence" which the Doctor brings against it. Of the other ornithological articles contained in this magazine, though locally interesting, there is no particular cause here to speak.

7. AUSTRALASIAN.

Five more parts of Mr. Diggles's work* have reached England since we noticed it (*ante*, pp. 117, 118). The two most remarkable species figured by the author are *Casuaricus johnsoni* and *Ptilonorhynchus rawnsleyi*, both described as new. They both come from northern Australia; but we must remark that he fails to show in what way the first differs from *C. australis*, the existence of which has long been indicated (*cf.* P. Z. S. 1867, pp. 241, 473, 482). The second is a magnificent species, quite distinct; but whether it should be referred to *Ptilonorhynchus* or *Sericulus* seems at present doubtful. Mr. Diggles also figures and describes *Pitta mackloti*, which he says "is a periodical visitant at Cape York." We cannot help suggesting that the Australian form may be specifically distinct from the true *P. mackloti*, hitherto only known from New Guinea (*cf.* Ibis, 1864, p. 106); and a comparison of Mr. Diggles's plate with that of Mr. Elliot (Monogr. Pitt. pl. xxii.) shows that this is not impossible; for the Australian bird seems not to have the entirely black throat and cheeks of the Papuan; and we beg leave to call Mr. Krefft's attention to the matter.

* The Ornithology of Australia. By SYLVESTER DIGGLES. Brisbane, Queensland. Imp. 4to. Parts XI.-XV.

XXIX.—*Letters, Announcements, &c.*

WE have received the following letters addressed "To the Editor of 'The Ibis'":—

Etawah, North West Provinces, India.
13th March 1868.

SIR,—I should be very glad if you or one of your most experienced contributors would write a paper describing the plumage of the well-known European Eagles in the different stages, commencing with *Aquila chrysaetus*. What is the nestling-plumage like? Is it dark brown like that of the old bird? Then what is the plumage after the first moult? and how does this change in the second year? The old bird is understood to be of a uniform dark brown, with the head of a lighter colour. What is the exact plumage of a very old Golden Eagle? To what extent does the head become light-coloured?

The next species I should like to see considered is *A. imperialis*. This bird is not uncommon in this country, for I have ten or eleven specimens; of these not one is an old bird. Those which I take to be in their first plumage are of a general light greyish-brown, with quill- and tail-feathers dark brown. These specimens strongly show light bars across the closed wing, caused by the broad light edges to the greater coverts and ends of the secondaries. The other specimens which I have, which I take to be in the next stage of the plumage, are similarly coloured on the upper parts; but the whole of the lower parts, except the chin and under tail-coverts, are dark brown, with the centre of each feather a very pale brownish-white. This gives the bird an appearance of being generally longitudinally striped beneath. Even when flying over one, the striped plumage can be distinguished. This plumage, if the individuals exhibiting it belong to the same species, must be that of the second year. But a pair of birds in this plumage have been seen engaged in building their nest, which, however, was abandoned without an egg being laid. The old Imperial Eagle is the well-known dark bird with a light buff head, and white shoulder-patches when sufficiently old to have them. When does the change of plumage from one stage to another take place, and how does it take place? for out of the many specimens I have seen I do not remember one

showing the bird to be in a transition state. Can any one throw light on the subject? Has any one seen the nestling Imperial Eagle fully fledged? and of what colour was the plumage?

One well-known bird here, *Aquila fulvescens*, which, after all that has been said, may turn out to be *A. navioides* and not a distinct species, has not a light-centred or striped plumage. I have certainly shot sixty or seventy specimens; and they vary, from a very light faded brown, or sort of dirty buff, to a fine dark hair-brown. Some of my specimens are patched with a mixture of dark and light brown. But the darkest brown of the "Wokhab," is not equal to the fine rich clove-brown of the Spotted Eagle (*A. navia*). The plumage, too, of *A. fulvescens* is harsh to the touch, and not of that smooth softness which characterizes the plumage of *A. navia*. I may here remark, while I think of it, that the eggs of *A. fulvescens* frequently run very large, sometimes exceeding those of *Haliaetus leucoryphus* and *Aquila imperialis*. The bird, too, sometimes is found sufficiently large and robust to be called *A. navioides*. I wish I had a few skins of this last for comparison. My idea is that in the northern parts of India the bird runs larger than in the more southern.

The third Eagle which puzzles me is *A. navia*. I have many specimens in the well-known spotted plumage figured by Yarrell (B. B. 3rd ed. i. p. 20), with the under parts, excepting the under tail-coverts, of a dark brown with lighter brown centres to the feathers. This mode of marking gives the bird a striped appearance below, which is not conspicuous at a distance, as the two shades of brown approach each other nearer than they do in what I take to be the two-year old Imperial Eagle. The thighs or tibial plumes are more conspicuously marked by having the feathers with pale centres. Even in this spotted plumage (as seen in Yarrell's woodcut) the bird when sitting at a distance of sixty or seventy yards presents a very dark appearance, quite black-looking in fact. The old bird is, as is well known, of a fine dark clove-brown without spots, and then has a truly black appearance at a little distance. There are a few soft white feathers at the lower end of the upper tail-coverts, just where they join the tail. The upper parts of the *shafts* of the tail-feathers are very white indeed, shaded gradually into the dark-

brown or black ends. The dark tail-feathers are seldom rayed or barred, and when so, very slightly. In this respect the tail-feathers of *A. nœvia* and *A. fulvescens* differ strongly, the latter having the bars very conspicuous. The tail of *A. nœvia* is much broader, and more square too, than that of *A. fulvescens*. I may here remark that the tarsal feathers of the old *A. nœvia* become more or less pure white. I have seen one fine old dark bird with the tarsus quite white, and I have another partly changed. The tarsus of the two-year old bird is clove-brown.

Of the first (?) and most unusual plumage I send a rough sketch and also a description I noted down of a bird shot a few days ago. The peculiarity of the specimen is the extremely light buff colour of the head and the whole lower plumage, and the grey and light buff colour of the shoulders. The only dark feathers are the large scapularies, primaries, secondaries, and tail-feathers.

Though my drawing is very rude, I have correctly given the colour of the head and lower parts; but the lower part of the scapulars should be darker. The lesser wing-coverts are a mixture of buff, pale brown, and positive white, so arranged that the shoulders seem to be of a buff-grey. The colouring is very peculiar, and I am not sufficiently skilful to represent it on paper. The ends of the upper tail-coverts are as in *A. nœvia*, pure white. In character and *frog-eating* habits the bird appears to resemble *A. nœvia*. If so, what plumage is this? Is it the nestling-plumage? Of the two dozen specimens of *A. nœvia* I have seen, two only have occurred in this plumage, four or five in the old dark spotless plumage, and very many in the spotted plumage so well known from Yarrell's figure. Mature birds are generally much more scarce than those in immature plumage; but why should the youngest plumage of all be so rare? Numbers of *A. nœvia* were seen and not shot; but Mr. Hume, who has had much more experience in Eagles than myself, has only seen one buff bird, the one I shot last year in February; and I have, in addition to this, just obtained another, shot on the 11th of March this year. The first bird is a male, the last a female. In plumage they are extremely alike. I notice that the bill is of a much paler blue than the old bird's, so also with the cere

and feet. They are more of a pale whitish-yellow. Does not this indicate youth? But the feathers are *well worn*, especially the ends of the tail-feathers.

A. nævia, though only a cold-weather visitant here, breeds at this side of the Himalayahs in the Saharunpore district, as a correspondent of Mr. Hume's informs him; and he has received the egg (a finely blotched and spotted one) thence. In the crops of all those we examined we only found frogs. This is perhaps the reason why the bird is so seldom seen except where water is plentiful. The bird is frequently seen seated among the half-submerged grass, where it watches for its prey, much as a Heron would. The bills and claws of those I shot were often covered with mud, and their crops could hardly have held another frog.

My last remark is that I have a skin of *Milvus govinda*, or what I take to be that species, with the lower parts dark brown, each feather having a very light brownish-white central stripe. This gives my Kite as distinct a striped appearance as is shown in the second specimen of the Imperial Eagle, described above. This example is the only striped Kite I have seen; but I should add I have not shot many of these useful birds. I once saw one kill a cobra, which it did by tearing up the top of the head, eyes included. Since that I have respected *M. govinda*. We have some extremely large Kites here. Can they be the same species? The plumage is the same; but the size varies, like that of *Aquila fulvescens* before mentioned.

I have now said sufficient on this subject; and if any one of your contributors will take it up, and clear up everything connected with changes of plumage in the true Eagles, I shall be very glad indeed. A short and accurate description of the different large Falcons would also be very useful. I mean the Peregrines and Lanners especially, showing in each the distinguishing characteristics. The young plumage of each requires particular description, as I believe they much resemble each other, *Falco jaggur* excepted, which is quite a dark-brown bird.

I remain, &c.,

W. E. BROOKS.

. [We have submitted our correspondent's letter with its enclosures to Mr. J. H. Gurney, who kindly informs us that he

suspects the bird therein drawn and described to be *Aquila hastata*, Lesson (Jerdon, B. Ind. i. p. 62), a rare species, of which he has never seen an *identified* specimen, though he believes an example in the Norwich Museum (formerly in the collection of the Zoological Society) to be referable to it. This example, he adds, in some of its characters appears to be intermediate between *A. naevia* and the African *A. mursi*. *Aquila hastata* does not seem to have been ever figured; and we trust Mr. Brooks will send home some of the specimens about which he is in doubt, so that, should they prove to belong to that species, as is suspected, we may give with his description (which we at present withhold) a representation of it.—ED.]

Hongkong, April 20, 1868.

SIR,—I have had my tour in Hainan, and met with pretty tolerable success, especially in the bird line. I was, however, disgusted at finding no Pheasant, not even *Phasianus torquatus*, in that land of cocoa-nuts. The Game bird was a wretched Jungle-cock. Among the smaller birds there were many of great interest—two species of *Nectarinia*, two of *Dicaeum*, a fine Parakeet, *Gracula*, *Zanclostomus*, *Artamus*, *Criniger*, and so on. Our *Ixus sinensis* assumes there a *black* head without any white. *Gracula* of the opposite coast changes the shape of its cheek-wattles. *Garrulax auritus (sinensis)* dwindles in size, and loses its white cheek. The red-cheeked moustached Parrakeet of West China alters into a cognate but a handsomer species in Hainan. A yellow-necked *Argala* occurs, and *Grus cinerea* frequents the plains in large numbers. The Magpie builds its nest in the cocoa-nut trees; and clumps of the Pine (*Pinus sinensis*) grow up close to the tops of the cocoa-nut. A large spotted Lizard in the south part of the island has the side-skin expanded, and flies along the sand; another species, inhabiting trees, has its ribs greatly produced and covered with skin, thus forming ample wings. This species, at first sight, calls to one's mind the large-winged *Bacteria* of Africa. I believe it to be an *entirely new form*, and one that will delight the Darwinians.

In the aviary of the Prefect of Hainan I saw Selater's Peacock, *Pavo nigripennis*, which the Prefect assured me came from

Annam or Cochin China (proper) There is a pair of the same species at this moment in a birdshop here ; and I now believe *P. nigripennis* to be the species known as the "Bird of Confucius," the tail-feathers of which are worn in Mandarins' hats as tokens of merit. Chinese works state that the Peacock occurs in the west of China, bordering Cochin China. This identification will please Mr. Selater.

I am off to Canton for a week or so to finish my report on Hainan for the Government, after which I have to proceed to Peking to report myself to H. M. Minister. I shall probably touch at Shanghai. I hope in the course of two or three months to find myself comfortably settled in one of the Ports of the Yangtsze, either Kinkiang or Hankow, where I may find time to work up my Hainan collection and the last good things procured at Amoy. Fancy *Cochoa viridis* of the Himalayas being picked up at Amoy ! I am suffering from neuralgic headaches, and was greatly bothered by the same during the whole of the Hainan cruise. This will account for the present hurried letter.

Yours sincerely,

ROBERT SWINHOE.

SIR,—It does not seem unlikely that the Sparrows mentioned by Capt. Beavan in his last paper (*anteà*, p. 173) were females of *Passer pyrrhonotus*, nobis, which is an exceedingly well-characterized species, though I have only seen the type-specimen of it, which was procured at Buháwulpur in Sindh by Sir A. Burnes. Observers in the North-west Provinces of Upper India should look out for this pretty little Sparrow, the male of which is particularly distinguished by its maroon-coloured rump. Of *Emberiza cia* (*anteà*, p. 175, note), I have compared two Himalayan specimens with a European one in the possession of Mr. Gould. The two former, *i. e.* the particular specimens in question, have the black streaks on the head more strongly developed ; but I have seen others from the Himálaya in which this certainly was not the case, and am of opinion that Mr. Gould's examples are simply particularly fine old males in full summer plumage, which might doubtless be paralleled in Europe. There is no other difference whatever ; and the alleged *E. stracheyi*, Moore, I

therefore consider to be inadmissible as a species sufficiently distinguished from *E. cia*. As regards *Pyrrhulauda grisea* (anteà, p. 180), this bird is quite common a very few miles above Barrackpore, becoming so as the country gets more sandy, and wherever the Baubul (*Vachellia farnesiana*) abounds. *Calandrella brachydactyla* has always the blackish patch on each side of the breast; but in newly-moulted plumage this is little seen. The same patch is occasionally so much developed in *Melanocorypha torquata* as to meet its opposite in front, as was the case in the example from which I named the species.

Col. Tytler, in his paper, mentions two birds by the names of *Dicrurus himalayanus* (anteà, p. 200) and *Emberiza himalayensis* (anteà, p. 201), which I have great reason to suspect are no other than *D. longicaudatus* (the common hill species) and *E. pityor-nis*. His *Turtur meena* (anteà, p. 203), "common at all heights from 4000 to 9000 feet," must needs be the common Himalayan form of the same particular type, *T. monticolus*, Pallas (apud Jerdon), which is considerably larger than *T. meena*, and has white under tail-coverts, instead of their being deep ashy. *T. monticolus*, indeed, is precisely similar in colouring to the European *T. auritus*, from which it differs only in its very superior size. In *T. gelastes*, Temm., of Japan, the lower tail-coverts are pale ashy; and the hue of the upper parts in *T. meena* is always much deeper and richer than in the others. That *Turdus albocinctus* and *T. castaneus* (anteà, p. 198) are specifically identical I have long been disposed to think, but I regard them rather as two parallel phases than as indicative of age; and I suspect the same of *T. atrogularis* and *T. ruficollis*, especially as some examples of the former have the tail more or less rufous as in the latter.

In Mr. Hume's letter, for *Saxicola leucuroides* (pp. 234-5), substitute *S. opistholeuca*, Strickland; *S. leucuroides* has ferruginous lower tail-coverts.

E. BLYTH.

May 9, 1868.

SIR,—There is an unfortunate mistake in my paper as printed

in the last number of 'The Ibis,' which it is most desirable should be corrected.

The tables of dimensions and the description assigned at pages 166, 167 to *Corvus splendens* refer to the preceding species, *C. intermedius*.

I am, &c.

R. C. BEAVAN.

June 3, 1868.

SIR,—Mr. Wallace in his last communication (*anteà*, p. 216) mentions that he is informed that "there are several species from the Philippine Islands in the Norwich Museum not included" in the list of the Raptorial Birds of the Malay Archipelago, published in 'The Ibis' for January last (pp. 1-27).

The birds to which this remark applies, in addition to *Spizæetus philippensis*, which Mr. Wallace has included in his supplementary list (Ibis, 1868, p. 216), are the following three species of Harrier, viz.:—

1. *CIRCUS SPILONOTUS*, Kaup, figured in 'The Ibis' for 1863 (pl. v.), where Mr. Swinhoe (p. 215) gives some curious particulars as to its habits. It is not confined to the Philippine Islands, as that gentleman obtained it at Amoy and in Formosa, and I have also received a specimen from Singapore.

2. *CIRCUS MELANOLEUCUS* (Gmel.), which, besides occurring in the Philippine Islands, is found in China, South-eastern Siberia, Affghanistan, India, and Ceylon.

3. A third undescribed Harrier of the Philippine Islands is of the same size and configuration as the last mentioned, but of very similar colouring to the adult male of *C. hudsonius* (Linn.), which Professor Schlegel (Muséum des Pays-Bas, *Circi*, p. 3) mentions as a species inhabiting the Philippine Islands, but which I have never seen thence.

It is, however, decidedly a smaller species than *C. hudsonius*, and may perhaps prove to be a hitherto undescribed state of *C. melanoleucus*—a possibility which has hitherto restrained me from describing it as a distinct species.

I am, &c.

J. H. GURNEY.

SIR,—While thanking you very heartily for the kind and appreciative criticism of my paper "On the Classification of Birds" which you have published in 'The Ibis' for January last, I should like to be permitted to say a few words in reply.

In the first place let me express my satisfaction that you have drawn attention to Dr. Cornay, who undoubtedly deserves all the merit which may attach to the perception of the classificatory value of the palatine bones. As I have taken occasion to explain privately to Dr. Cornay, it was a matter of much regret to me to find that I had overlooked his paper. My only excuse is, that the many ornithologists (yourself among the number) before whom I had the pleasure of placing my notions, not only when they were brought before the Zoological Society, but on other occasions, seemed to be of one opinion as to their novelty, whatever they might think of their truth.

Next I may be permitted to congratulate myself that you go as far with me as you do, and that, whatever you may think of the method I have employed, you agree in what I regard as the most important results of the application of that method.

For I perceive that you make no objection to the division of the Class *Aves* into the three primary divisions or "Orders" of *Saururæ*, *Ratitæ*, and *Carinatæ*, which are wholly based upon osteological characters.

With respect to the second, however, you remark (p. 91), "Therefore the single-headedness of the quadrate is not a distinctive character of the *Ratitæ*; and, indeed, it seems to me very doubtful if any of the other so-called 'characters' of the palatal structure are of much greater value in distinguishing between the *Ratitæ* and the *Carinatæ*;" and again (p. 92), "I therefore venture to submit that the palatal structure does not sufficiently furnish Ordinal characters."

But where have I suggested that it does? In giving the characters of the *Saururæ*, the palate is not mentioned, for the good and sufficient reason, that we know nothing about it, if for no other. And, in the characterization of the *Ratitæ* and of the *Carinatæ*, the vomer and palatines occupy a very subordinate place.

I think that in every complete definition of a natural group

there are two kinds of characters:—1st, those which are *diagnostic* of the group; and, 2nd, those which are *common* to all its members, and are, so far, characteristic, though they may not be diagnostic. Thus in defining the class *Mammalia*, one does not omit to state that the blood is hot, though the warmth of the blood is not a diagnostic character of that group; and in attempting to define the *Ratitæ* and the *Carinatae*, characters which are common to all the members of those groups, though they may not be absolutely diagnostic of them, should surely not be omitted.

Further, it must be recollected that the diagnosis of a group may rest not merely on a particular character confined to the group, but on a peculiar combination of characters.

And it may happen that a well-defined group shall not have a single structural feature peculiar to itself, its peculiarity lying entirely in the mode of combination of those features; so that if each one of the seven characters of the *Ratitæ* which I have enumerated were discoverable in some other animal, but in a different state of combination (if I may express myself chemically), I do not think the goodness of the definition would be interfered with.

I quite agree with you, that “a really natural arrangement can only be made out by taking an aggregate of characters”; and, practically, I have endeavoured to express this belief by enumerating seven characters for the *Ratitæ* and three for the *Carinatae*.

On the other hand, whatever one’s notions may be about what is philosophical and what otherwise, it is a matter of fact and every-day experience in zoology, that the modifications of a solitary organ will sometimes afford indications of affinity of great value throughout a whole class, or even subkingdom.

What to an *à priori* speculator could seem more unphilosophical and one-sided than to attempt to arrange the *Vertebrata* according to their occipital condyles, or according to the way in which the lower jaw is connected with the skull? And yet by either of these characters one would be able to assign 999 vertebrate animals out of 1000 to their proper divisions.

Or, again, what can be (theoretically) more open to criticism

than the attempt to classify animals by such a "single character" as that of their molar teeth? And yet, am I wrong in saying that if we happened to have no better guide, the character of these teeth would, in a large proportion of cases, give us a very good idea of the affinities of the monodelphous *Mammalia*?

Under these circumstances I do not feel that it is within my "moral competence" (to borrow a phrase from a distinguished personage) to entertain *à priori* objections to the value of a single character for classificatory purposes. The question must, I think, be argued *à posteriori*, and with reference to each particular case. Teeth may be very good marks of affinity among the *Mammalia*, and very bad ones among the *Reptilia*; but their badness in the latter case will not affect their goodness in the former.

Now let me apply all these considerations to the subdivisions of the *Carinatae*, in which alone, let me remark in passing, have I ascribed a prepotent virtue to palatine characters. In the case of the *Schizognathæ*, I must look upon your objections as a mere unconscious dissembling of affection; for is it not certified under your hand (p. 92)?—

"That the majority of the forms united by Prof. Huxley under the title *Schizognathæ* are in reality very nearly allied, will be denied by no ornithologist, I believe, who thinks for himself."

And again (p. 93):—

"Now on all these points, except one, I had already arrived at opinions closely resembling those of Prof. Huxley, but quite independently of any considerations of the bones of the palate."

Could I ask for better evidence, that the schizognathous skull marks a great natural division of birds as well as, for example, the doubly crescentic molar pattern marks a Ruminant?

In the face of the pleasure that such valuable confirmation of the essential validity of my views gives me, I will not complain of the paragraph which follows—though I do think that any one who discovered that certain molar teeth are characteristic of the whole of the *Ruminantia*, might reasonably feel a little hurt in his mind if you told him that you had arrived at the

conclusion that they were all one group by studying their horns and hoofs, and that the introduction of these troublesome "characters, drawn from the dental arrangement" might "rather have the effect of complicating and rendering obscure what was simple and clear enough without."

All I can say is, that if you will point out what character, other than the palatine, is common to the assemblage of birds in question, I shall welcome the discovery as the very reverse of a complication or obscuration of ornithic taxonomy.

Before leaving the *Schizognathæ*, however, I am bound to observe that I do not deserve the credit you are kind enough to give me in one matter (page 92, note). I have found, since my paper was written, that Lherminier, long ago, and more recently Mr. Parker, have strongly insisted on the relationship between the Gulls and the Plovers.

To sum up, I have endeavoured to show:—

1st. That the *Schizognathæ* form a very natural assemblage,—a position which I understand you to admit.

2nd. That the schizognathous structure of the palate is common to, and diagnostic of, all the members of this very large assemblage, with the exception of a very few species belonging to the genera *Crax* and *Dicholophus*. This position also is not disputed on your part.

3rd. Nothing else approaching the nature of a common, still less of a diagnostic character for this great group has yet been discovered.

I assume that you will assent to this proposition also. And, in that case, I really do not see what foundation is left for the rejection of the group *Schizognathæ* as a primary subdivision or suborder of the *Carinatæ*.

I think as much could be said on similar grounds for the *Dromæognathæ*, the *Ægithognathæ*, and the *Desmognathæ*, though it must undoubtedly be admitted that the four natural assemblages* of birds which compose the last-named suborder

* That is to say, 1. the *Chenomorphæ*, *Amphimorphæ*, *Pelargomorphæ*, *Dysporomorphæ*; 2. the *Aetomorphæ*; 3. the *Psittacomorphæ*; and, 4. the *Coccygomorphæ*.

are far less closely united together than those which make up the division of the *Schizognathæ*.

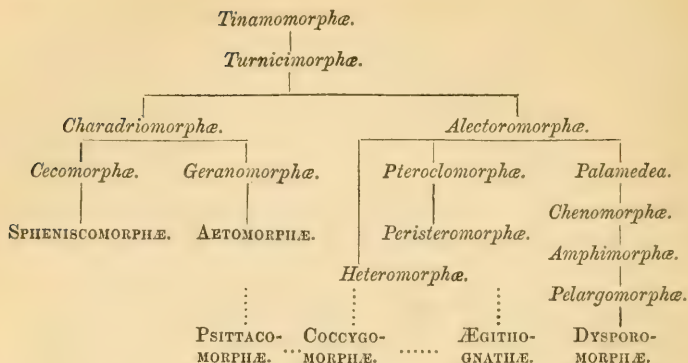
All classification by logical categories, such as that which I have attempted in birds, however, is more or less artificial, and must be regarded as simply a first and most important stage in the progress towards the ultimate goal, which is a *genetic classification*,—a classification, that is, which shall express the manner in which living beings have been evolved one from the other.

Classification by gradation, and the formation of natural series, is another stage in the same progress, and must by no means be confounded, as it often is, with the ultimate result—though, in all probability, it represents a true genetic classification more nearly than any other arrangement can do.

I believe that the broad outlines of such a gradational classification of Birds may be sketched out with tolerable accuracy, even though the details may have to be a good deal modified by subsequent research. Thus I take it to be demonstrated that the *Tinamomorphæ* are those carinate birds which approach nearest the *Ratitæ*; and I think it may be shown that the great majority of the *Carinatae* fall into one or other of four series, which diverge directly, or indirectly, from the *Tinamomorphæ* as a common centre.

Thus *Turnix* leads from the *Tinamomorphæ* to the *Charadriomorphæ*; and from the latter, two series start—the one commencing with the Gulls and ending in the highly modified Penguins, the other commencing with the Bustards and Cranes, and ending in the highly modified *Aetomorphæ*. On the other hand *Turnix* leads to the *Alectoromorphæ*, which is also the starting-point of two series—the one commencing in *Palamedea*, including the *Chenomorphæ*, *Amphimorphæ*, *Pelargomorphæ*, and culminating in the highly specialized *Dysporomorphæ*; the other beginning in *Syrhaptæ* and passing on to the *Peristeromorphæ*.

These series would stand thus, the names of the most differentiated groups being in capitals:—



I do not think that any one who will examine the facts will be disposed to doubt that this scheme nearly represents the affinities of the groups in question. The great difficulty is to determine the relations of the *Coccygomorphæ*, *Psittacomorphæ*, and *Ægithognathæ* to these; and I have ventured to indicate those relations only in the most doubtful and hypothetic fashion.

Ever yours very faithfully,

T. H. HUXLEY.

On Thursday, the 11th of June, a paper was read before the Royal Society, describing the osteology of *Pezophaps solitaria* from the bones which, as we last year mentioned, were obtained from Rodriguez by Mr. Edward Newton. At the same time a beautifully mounted skeleton of the Dodo, and two (supposed to be male and female) of the Solitaire were exhibited. These were put together by Mr. J. W. Clark, the able and energetic Superintendent of the Museums of Zoology and Comparative Anatomy in the University of Cambridge, where the specimens are deposited.

THE IBIS.

NEW SERIES.

No. XVI. OCTOBER 1868.

XXX.—*On the former Existence of a large Pelican in the English Fens.* By ALPHONSE MILNE-EDWARDS*.

THE Mammals whose remains we find in peat-bogs have been the object of careful study; and we begin to know well several representatives of that fauna with which man, at his origin, probably had to do. On the other hand we know very little of the Birds which have left their remains in these deposits, and hitherto a precise determination of them has not been attempted. There would be, however, a great interest in undertaking this examination, and in ascertaining what were the species of this class which inhabited our countries at the period when the Beaver, the Urus, the Bison, and the Irish Elk lived in great numbers in the forests and on the borders of our watercourses. I have lately convinced myself that investigations of this kind would give important results.

The peat-bogs of the neighbourhood of Cambridge have furnished a pretty large number of remains of Birds, which Mr. Seeley and Mr. Alfred Newton have been good enough to submit

* [We have thought that a translation of this article (which appears in the 'Annales des Sciences Naturelles,' 5^{me} sér. tom. viii. pp. 285-293, pl. 14) would be interesting to very many of our readers, who might otherwise not become acquainted with it. The specimen was exhibited at the Meeting of the Zoological Society of London, on the 9th of January last (cf. P. Z. S. 1868, p. 2).—ED.]

to my examination. I have been struck at finding among them a humerus which evidently proceeded from a Pelican.

This bone, which belongs to the Woodwardian Museum, was obtained from the peat-bogs of the marshy districts, the Fenlands, which cover the northern part of Cambridgeshire. These deposits have been studied with much care by Mr. Seeley*, who with his usual kindness has furnished me with some valuable information on the subject.

Beneath the peat in course of formation, which is of variable thickness, and contains some freshwater shells as well as living plants, there lies a clay filled in places with marine shells such as *Tellina obliqua*, *Cardium edule*, and *Scrobicularia piperita*, and enclosing also some remains of marine mammals, such as the Walrus, Porpoise, and Whale. This clay rests on a bed of peat in which occur trunks of yew-trees (*Taxus baccata*), some placed vertically and reaching to the surface of the peat, but rotted off in the clay above. This is the deposit in which the remains of land-vertebrates are found; and, though the exact position whence the Pelican's humerus was obtained was not noted, its colour and nature indicate that it came from this layer of peat. The mammals which have been recognized from the same layer belong to the following species:—*Bos frontosus*, *B. primigenius*, *Cervus megaceros*, *C. elaphus*, *C. capreolus*, *Ursus arctos*, *Lutra vulgaris*, *Canis lupus*, *Sus scrofa*, and *Castor europæus*. I have also been able to recognize several species of birds, such as the Whooper-Swan (*Cygnus ferus*), Wild Duck (*Anas boschas*), Garganey (*A. querquedula*), Crested Grebe (*Podiceps cristatus*), Bittern (*Ardea stellaris*), and Coot (*Fulica atra*).

The remains of Swans were very numerous there, and belonged to many individuals. Among them occur fragments of the sternum with the deep cavity which, in this species, lodges the fold of the wind-pipe. Bones of the Grebe also were sufficiently common, though there were but few coming from the Duck, the Bittern, or the Coot. All these species still dwell numerously in the eastern part of England; their presence, therefore, in its peat-bogs has nothing in it which can surprize us: but with the

* "Theoretical Remarks on the Gravel and Drift of the Fenlands." Geol. Mag. 1868, iii. p. 495.

Pelican it is otherwise ; for this bird does not belong to the fauna of the British Islands.

The genus *Pelicanus* counts several species, which for the most part inhabit the warm regions of the globe. *Pelicanus rufescens*, Gmel., is a native of Africa, where it is met with from the Gulf of Guinea to the Mozambique Channel ; *P. philippensis*, Gmel., inhabits the southern parts of Asia and the Philippine Islands ; *P. trachyrhynchus*, Lath., is found in South America, as is also *P. fuscus* and *P. thagus* ; *P. conspicillatus*, Temm., is an Australian species. This genus in Europe is only represented by two specific forms—*P. crispus*, Bruch, which is met with on the shores of the Black Sea and on the islands at the mouth of the Danube, and *P. onocrotalus*, Linn., which is common in the southern and eastern countries of Europe. This last occurs in large numbers on the lakes and watercourses of Hungary and Russia, and is also seen further south in Asia and in Northern Africa. If it occurs in France, it is only accidentally ; and only two or three exceptional cases are recorded in which its presence has been asserted in England. Thus Fleming, in his 'History of British Animals,' tells us that a Pelican was killed in 1663 in Horsey Fen*, and that another of these birds, in brown plumage, was seen by Dr. Leith in the month of May at Blackheath, near London ; and, finally, Mr. Alfred Newton has shown me a note published by Mr. Tristram [Zool. 1856, p. 5321] in which that author announces that the remains of a Pelican were found on the shore at Castle Eden, in the county of Durham, the 25th August, 1856.

Pelicans, then, cannot figure in the list of birds proper to the British Islands ; for the few individuals there met with have been driven by the winds far from the countries which they commonly inhabit. But one cannot explain in that manner the existence

* [This statement, which rests on the authority of Sir Thomas Browne, was, we believe, together with that which next follows it in the text, first published by Latham (Synops. B. iii. p. 577) in 1785. Sir Thomas inquires whether the Horsey bird might not have been one of the King's Pelicans, lost about that time from St. James's Park. Montagu (Suppl. Orn. Diet.) suggests that the bird seen by Dr. Leith may have been an immature Swan.—ED.]

of our Pelican in the peat-bogs of the neighbourhood of Cambridge; for it belongs to a young bird, consequently too weak to undertake distant voyages. It is sufficient to cast a glance on the bone of which I am giving the history, to be assured that the process of ossification was not completed, as is shown by the state of the articular extremities. One must not for a single moment think that this bird had left Russia or Africa and, driven from its course by atmospheric currents, come to die in England, on the borders of the Fens, where the beds of peat in which it was found are deposited. One must not invoke such an explanation; and evidently this Pelican was a native of that country.

We may be inclined perhaps to wonder that a single bone, belonging to a young animal, and consequently not presenting all its anatomical characters, should permit the exact recognition of the genus and species of bird to which it belongs. So precise a determination would not be always possible; but in the present case there need be no doubt; for I have shown, in another work*, that the wing-bone in the genus *Pelicanus* offers extremely clear distinctive peculiarities, which do not allow of its being confounded with that of any other bird.

The length of the bone furnishes a character which should not be neglected; for there is no other bird of flight, except the Albatros, which has the humerus so long; and in this last genus its characters are otherwise clearly different. Indeed this bone is very slender, and its articular extremities are much compressed. Besides, above the epicondyle there is a hook-shaped apophysis to which is attached the long extensor muscle of the manus. In the Pelican, on the contrary, the humerus is stout, relatively to its length, its articular extremities are bent back, and there is no upper epicondylia apophysis.

All other birds have the wing-bone much smaller than the Pelicans; and even if we dismiss this empiric character, we find in the conformation of the bone fundamental differences which permit of its easy recognition. Notwithstanding its bulk it is extremely light, which is due to the development of the internal air-cells, which open by a large orifice situated at the upper extremity beneath the trochanterian tuberosity. The bony tissue

* [Oiseaux fossiles de la France, p. 230.—ED.]

of the diaphysis is extremely dense and firm, but presenting very little thickness. The articular extremity is tolerably expanded, and remarkable for the slight projection of the external ridge to which the great pectoral muscle is attached, and also for the bending back of the surface on which the short portion of the biceps works. In no other bird is this surface nearly so much developed; for in the present genus it forms a considerable projection which extends beyond the surface of the bone and the inner edge; below it is terminated by a groove very deep and peculiar to the Pelican. The external ridge, as I have just said, projects but little; and one might wonder at the fact in a bird which flies so well, if it did not terminate in a large, somewhat oval and rough impression, which offers a very extended surface of insertion for all the lower portion of the principal pronator muscle of the wing. Inside this ridge we see a slight depression, bounded beneath and on the sides by a curved and somewhat projecting line; and this surface is occupied by the anterior deltoid muscle, which is extremely large. The articular head of the bone is much extended transversely, but only a little elevated.

The shaft of the bone presents a curve inwardly concave; it is furrowed beneath and in front of a somewhat oval, and not very deep, depression for the insertion of the anterior brachial muscle. The canal by which the bone is nourished opens upon the inner edge a little above the half of the diaphysis.

The inferior articular extremity is remarkably thick; of its two condyles the cubital is most developed, and above it are some pneumatic orifices. The epicondylar projection is thick, rounded, and clearly separated from the radial condyle. Traces only of the olecranian fossa exist; and, finally, the lip which inwardly bounds the inner groove of the triceps, is extremely bent back and thick.

The pneumaticity of the humerus and the bulk of the diaphysis, compared with that of its extremities, do not allow of this bone being confounded with its analogue among the Swans or the other lamellirostral *Palmipedes*. The bending back of the bicapital surface and the slight thickness of the bony plate differentiate it from that of the other *Totipalmes*, such as the Gannets, Cormorants, and the like.

The absence of an upper epicondylar hook-shaped apophysis will not allow of its being confounded with the wing-bone of the long-winged *Palmipedes*, and with the Waders which I place in the family of Sandpipers. Among the largest representatives of the family of Storks, such as the Marabous, the principal bone of the wing resembles that of the Pelican in its pneumaticity and in the development of the bicapital surface; but the diaphysis is comparatively much less stout, the external ridge more prominent, the trochanter more projecting, and the epitrochlear stouter and furrowed by deep grooves for the insertion of the flexor muscles of the manus; lastly, in these birds the inner lip of the groove of the triceps is only slightly bent back.

In the Cranes the humerus is more strongly bowed, and the bicapital surface is relatively only slightly bent back. I should add that the epitrochlear is much more developed.

The differences which exist between the wing-bone of the gallinaceous and passerine birds and the Parrots and that of the Pelicans are too striking and too numerous for it to be useful to pause upon them. In the natural group formed by the birds of prey, the shaft of the bone is generally slightly bent back, though the extremities are much expanded and the bicapital surface only occupies a small space. In the Condor, however, as in all large birds of flight, the humerus is very pneumatic and presents numerous air-orifices above the lower condyles and below the great trochanter; but the bony plate of the diaphysis is very thick, the outer ridge is prolonged nearly as far as half the bone, and, lastly, the lower extremity is remarkably expanded. Besides, the locality of this species would have enabled me to dispense with the comparison of its skeleton with that of the Pelican; but I think it well to show that, in this last genus, the humerus offers a combination of organic characters which are not elsewhere found.

This examination proves on the strongest evidence that the fossil bone of the Cambridgeshire peat-bogs belongs to the genus *Pelicanus*; for, although its articular extremities are only imperfectly ossified, all the characters are to be found there which I have shown to be proper to the Pelicans:—the slight projection of the insertional ridge of the great pectoral muscle and the

rough impression situated beneath it; the extent of the depressed surface where the anterior deltoid is lodged; the position of the canal for nourishing the bone; the number and the size of the pneumatic orifices, and so forth. The agreement of the proportions between the shaft of the bone and its extremities is the same; and the light specific weight of which I have above spoken is equally to be found. We cannot judge of the extent of the bicipital surface; for this last is unfortunately broken. Besides, that we may better estimate the resemblance between this bone and the humerus of the Pelican, I have had one of these bones drawn*.

The single fact of the presence of a Pelican in the Cambridgeshire peat-bogs is of real interest; but the study I have made of the fossil bone in question gives something more. It presents, indeed, very considerable dimensions. I have already had occasion to say that its articular extremities are imperfect; consequently it is not in its entirety, and evidently by the progress of age it would become decidedly elongated. However that may be, it measures about 37 *centimètres* [14·25 inches]. Knowing the length of the humerus, we may easily deduce from it the length of the whole wing; for, in the Pelicans, the proportions of the different bones which form the solid frame-work of the fore limb vary but very little. Thus, if we suppose the length of the humerus in these birds to be represented by 100, that of the forearm would be 113, and that of the manus 78. Consequently, allowing that in our Pelican of the peat-bogs the proportion was the same, the forearm would have measured 42 *centimètres*, and the manus 29, which brings the whole length of the wing without its feathers to 1·8 *mètre* [about 3 feet 6 inches].

I have compared the fossil of the Cambridgeshire fens with many humeri of adult Pelicans belonging to different species, such as *P. onocrotalus*, *P. crispus*, *P. philippensis*, and *P. thagus*, and I have not met with a single one of which the dimensions were the same. The largest of *P. onocrotalus* hardly approach it. Are we, then, to regard the bird of the peat-bogs as a dis-

* [We are compelled to omit a reproduction of the plate, which gives two views of the Cambridgeshire bone and one of the humerus of the recent *Pelicanus onocrotalus*—all of the natural size.—ED.]

inct species of much more considerable size? This supposition is probable enough; but it would be perhaps premature to establish at the present time a new specific form; and before inscribing it in our systematic catalogues, it seems to me more prudent to wait till new researches shall have produced some parts of the skeleton belonging to adult birds, which will inform us more exactly as to the proportions of our British Pelican.

We know at what geological epoch most of the mammals whose remains are found buried in the drift have appeared; we know also the epoch at which some of them have ceased to exist. With birds it is unfortunately not thus; the materials of study we have at our disposal are not yet sufficient to let us reconstruct the entire history of the species of which we can determine the history during the "quaternary" period. Has the ornithological population of this epoch, contemporary with the first ages of man, having been submitted to the same influences as the mammalian fauna, undergone analogous modifications? The little we at present know of it inclines to make us think so; for we know that at the epoch when the caves were filled up many of our birds already existed in large numbers. Others, such as the Snowy Owl (*Nyctea nivea*) and the Willow-Grouse (*Tetrao albus*), have gradually retired towards the north; others, again, have at last disappeared, as proved by the remains of the large Crane discovered in the caves of the Dordogne*. The remains collected in the peat-bogs of Cambridgeshire seem to indicate facts of the same order; for by the side of the Swan, the Duck, the Grebe, the Bittern, and the Coot we find a Pelican of gigantic stature, which seems to belong to a species different from those which represent this genus in our actual fauna, and has lived in England along with the Great Irish Elk, the Urus, and perhaps even with the Tichorhine Rhinoceros.

XXXI.—Notes on Various Indian Birds.

By R. C. BEAVAN, Bengal Staff Corps, C.M.Z.S.

[Continued from p. 181.]

772. CROCOPUS PHÆNICOPTERUS. Bengal Green Pigeon.

I found this species tolerably abundant in the Maunbhoom

* [Cf. Ibis, 1866, p. 414.—ED.]

district in 1864-65 ; at least I presume it must have been this, and not *C. chlorogaster*, Blyth, since Dr. Jerdon mentions that Col. Tickell procured it in the same tract of country (as that about Phuteeala, a village near Ambekanuggur, in Maunbhoom) where I observed it in February 1865, in small flocks of seven and eight. I found that Dr. Jerdon's description of the specific differences between the two species was not sufficient without having specimens of both by one, or minute enough to enable one to distinguish between them. I copy the following from my note-book :—

“Irides blue, surrounded by carmine, which gives a purplish hue to the eye where the two colours meet. Feet light yellow, claws pale blue. Bill horny white. The note is a kind of warbling whistle (it may be syllabled “tecuu-toi-toi-tecu-u”) uttered slowly and with distinctness, generally when two or three are seated near each other at the top of some shady fig or other tree in fruit.”

I have found them common throughout the hills bordering the Grand Trunk-road from Rancegunge upwards. In Maunbhoom they generally frequent the same kind of cover ; and when once one finds out a tree in fruit which is frequented by them, it may be visited day after day, and each visit will be rewarded by one or two specimens, which are highly esteemed for the pot. Each flock seems to frequent a certain number of trees, such as the peepul, banyan, or other *Fici* when in fruit ; and when disturbed from one, they fly off to the next, thus taking them all in turn. The species breeds in Maunbhoom, where I procured several specimens of the eggs in April 1865. They are of course white, two in a nest, and differ from ordinary Pigeons' eggs in being more blunt and rounder at the ends. This species also occurs sometimes about Umballah, according to the late Dr. Scott.

774. OSMOTRERON BICINCTA. Orange-breasted Green Pigeon.

I met with this beautiful species in some abundance in the hilly and forest-covered parts of the Maunbhoom district, especially near Ambekanuggur in December 1864, and, in January 1865, among the Jubee Hills. It was tolerably common there in the

well-wooded hilly country, in flocks of five and six; and the following are the particulars of a male killed at Beerachalee on the 26th March 1865, which, in dimensions, somewhat exceeds that described by Dr. Jerdon. The irides were bright blue, approaching to purple, surrounded by an orange rim. Length very nearly 12, wing 6·125, tail 4·5, bill, from front, ·625, extent 19·75. This species is generally found feeding on the pulpy and orange-coloured fruit of the *Strychnus nux-vomica*, which grows abundantly in this part of Maunbhoom, and affords sustenance to many of the wild Pigeons. I fancy that this species is only to be met with in certain spots, and that its range is confined to these; for I never had observed it in any other part of India. It doubtless breeds in Maunbhoom; but I never observed the nest.

778. SPHENOCERCUS SPHENURUS. Kokla Green Pigeon.

At Darjeeling in 1862 I procured four specimens, and might have got many more, as it was rather abundant in Sikkim. I have since procured it at Simla, where it is said to be not uncommon near the station, and I have heard one singing late in May, 1866, near the house. I have seen them near the gardens of Annandale on several occasions. One killed June 2nd, 1866, measured as follows:—Length 13·5, wing 7·24, tail 6·125, tarsus ·812, bill, from front, ·812, spread of sole of foot 2. The legs are coral-red, with white soles, and claws of a bluish-horny tinge. The base of the bill at the nostril is of a most beautiful azure-blue, its tip horny-blue, the orbits of a darker blue, and the irides with a bright blue ring, surrounded by another ring of pinkish orange. It has a beautiful warbling kind of song, which is exceedingly musical.

The female appears to differ from the male in being a trifle smaller, and in having the whole upper parts green without any maroon on the shoulders or back, or any bright yellow on the head, breast, or under tail-coverts. There is more green also mixed with the yellow, where it does occur, than in the male, and the female is altogether a much less handsome bird. In the male the top of the head, the breast, and belly are of a golden greenish-yellow; the maroon colour

extends from shoulder to shoulder quite across the back, and between it and the yellowish-green of the back of the neck the colour is ashy. Lower down the maroon gradually blends into a dark leaf-green, which extends to the tail. The primaries, however, are dark slaty-blue, almost black, the outer webs of the quills as well as the secondaries being slightly edged with yellow. The vent and flanks in both sexes are of green and yellow mixed; and the under tail-coverts in the male are very pale cinnamon, while in the female they are yellow with green in the middle. The inner surface of the wings and the tail-feathers are slaty-blue in both sexes. The specimens obtained at Simla, 7th June, 1866, measured in the flesh as follows:—

	Length.	Wing.	Tail.	Bill from front.	Tarsus.	Spread foot.
♂..	13·125	7	5·125	·875	·75	2
♂..	13·125	6·875	5·25	·875	·8125	2
♀..	13	6·875	5·125	·8125	·75	2

779. SPHENOCERCUS APICAUDUS. Pin-tailed Green Pigeon.

A single specimen was procured by me at Darjeeling in 1862; but I much regret I can find nothing recorded about it in my note-book, except that I got it in the valley of the Great Rungeet River.

780. CARPOPHAGA SYLVATICA. Green Imperial Pigeon.

I procured a fine specimen of a female of this magnificent species at Kyodan, on the Salween River in Burmah, on the 17th of August, 1865. Its length was 17, wing 9, tail 6·75, tarsus 1·25, bill, from front, 1, extent about 27. Irides blood-red. Orbits pearly-grey, with a red edging. The bill had both mandibles of a greyish-white colour, more horny towards the tip, and pinkish over the nostrils. Claws slate-coloured. I also procured one specimen of this species in the Maunbhoom district, in 1864 to the best of my recollection.

782. ALSOCOMUS PUNICEUS. Purple Wood-Pigeon.

Like Colonel Tickell, I found this species in the Maunbhoom district, in 1864, in small parties of four or five, in the thick and high trees, which, in that district, are invariably found growing along the banks of rivers; and my first specimen was procured

by the banks of the river Cossye at Ambekanuggur. The species appears to feed almost entirely on the fruit of the *Strychnus nux-vomica*, and, as mentioned by Dr. Jerdon, on the "jmoon" (*Eugenia jambolana*). It is excessively wary, and can seldom be procured, except by a flying shot as the birds dart out of the thick foliage on hearing a step below them on the ground. Dr. Jerdon's dimensions are apparently too large; of two specimens measured by me in the flesh one was only 14.5 in length, and the other but 14. The bill is purple at the base, with a greenish horny tip, approaching to white in some. Claws white. Legs and feet a light pink or darkish flesh-colour.

787. *PALUMBENA EVERSMANNI*. Indian Stock-Pigeon.

Although I have never obtained this rare Pigeon myself, I believe it was first discriminated at Umballah by my late valued friend Dr. Scott, who had previously resided for some time at Hansi, and told me he had seen them at the latter station in the first instance, and then informed either Dr. Jerdon or Mr. Blyth of their nearly annual occurrence also at Umballah. Indeed, although during my stay there in 1866 none were to be seen, some I believe had been killed there the year before, and Dr. Scott promised to look out again anxiously for their arrival, and let me know. But, unfortunately, he succumbed to the climate, as has been already recorded in these pages (*suprà* p. 134), before he had time to verify these points. The native name is "Cummer-kooller," not "kalla" as Dr. Jerdon has it.

792. *TURTUR RUPICOLUS*. Ashy Turtle-Dove.

The specific name given to this bird by Pallas is decidedly a misnomer; for about Simla, where I found it in tolerable abundance in 1866, it frequents trees only, so far as my experience goes, and I never saw one perch on a rock. Dr. Jerdon imagines that it is only a winter visitant to the hills; but I found it there in May and June, and it evidently breeds there. At that time of the year it is of course always in pairs, whereas the next species, to my knowledge, is generally in small parties or flocks. A very fine specimen in the flesh, killed at Simla on 10th May, 1866, measured:—Length 13, wing 7.375, tail 5.25,

tarsus .875, bill, from front, .638, spread of foot 2, extent 20. Irides bright orange. Bill and legs lake-red, the latter brighter than the former, and with dark claws. The vent and lower tail-coverts are pure white (which perhaps may become light grey as the plumage gets older). The neck-patch consists of parts of five rows of feathers, and is not seen from the outside to meet on the nape. The under wing-coverts are slaty-blue. I invariably observed the species either singly or in pairs. It much resembles *T. meena*, and seemed to me at first sight to be that species; but the dimensions of the specimens agree better with Dr. Jerdon's description of *T. rupicolus*, and the locality where I procured them affords another reason for considering them to be such.

793. *TURTUR MEENA*. Rufous Turtle-Dove.

My first acquaintance with this species was made when marching in 1859 on treasure-escort from Julpigoorie to Rungpore, in the Rungpore district of Lower Bengal, where we came across large numbers of them in flocks frequenting the summits of the tallest bamboos, and they formed no unwelcome addition at that time to the table of myself and a brother officer. I have since procured the species in Maunbhoom, where I think it breeds, as its presumed egg was brought to me at Beerachalee in the spring of 1865; but the bird itself was not very abundant, and was probably migratory in that district. Dr. Jerdon is, I think, in error when he says that this bird "does not breed in the plains;" and I doubt not that the birds mentioned as "newly caught" by Mr. Blyth, from the Calcutta Bazaar*, were procured by natives, either from this district or the Darjeeling "terai;" and in that it "goes to the hills to breed" from the last-named locality, I have no doubt that Dr. Jerdon is right.

794. *TURTUR CAMBAYENSIS*. Little Brown Dove.

This is tolerably common in the Maunbhoom district, where it breeds, and is called by the natives "*Tirqua ghughoo*." I also observed it rarely at Umballah in 1866.

* In 'The Ibis' for 1867 (p. 12, note) Mr. Blyth refers to another authority some remarks of my own on birds from the Rajmehal hills being sold in the Calcutta Bazaar.

795. *TURTUR SURATENSIS*. Spotted Dove.

Abundantly distributed throughout Bengal, and common in the Maunbhoom district, where it is called "Telia ghughoo" by the natives. It is found also throughout the country up to Umballah, and was noticed by me on several occasions frequenting the low valleys of the Himalayas, both at Darjeeling in 1862, and Simla in 1866. Of the Burmese species, *Turtur tigrinus*, Temm.*, I find a record of a fine specimen procured by me at Moulmein, on Sept. 7, 1865. Length 12, wing 5·625, tail 5, tarsus ·812, bill, from front, ·6875. Irides vinaceous-white, inclining to pink.

796. *TURTUR RISORIUS*. Common Ring-Dove.

Quite as commonly distributed as the preceding species all over India, where it affords great sport for "griffs." to practise their shooting upon; and its flesh is not at all bad eating when one is hard up for food in camp, where "dove-pie" is a standing dish. In Maunbhoom the natives call it the "Dhōlee ghughoo." It breeds in this district, and its eggs are very frequently discovered both by men and birds of prey; in fact, when natives first begin to find out that a collector will pay for eggs brought in, they invariably bring in heaps of those of this species as being the most easily procured. A specimen killed in Maunbhoom on 5th March measured in length 12, wing 6·5, tail 5·5. Irides blood-red.

797. *TURTUR HUMILIS*. Red Turtle-Dove.

This is the rarest Dove in India, although found abundantly at certain seasons in certain spots. It is apparently a more migratory species than any of the others. I have observed it both in the Maunbhoom district and at Umballah, where it is decidedly rare.

798. *CHALCOPHAPS INDICA*. Bronze-winged Dove.

I procured this handsome bird first of all at Darjeeling in 1862, then at Barrackpore in 1864, and in the Andaman Islands in 1865 (*cf.* Ibis, 1867, p. 332). At Barrackpore I found it frequenting the densest bamboo thickets, generally feeding in their shade, and flying into them when disturbed. Near Dar-

[* *Cf.* Ibis, 1867, p. 150.—ED.]

jeeling the species is only found in the warm beds of the rivers ; mine were procured in the Great Rungeet Valley, and they do not appear to go higher up the hills than the bamboo will grow, an elevation of about 1200 to 2000 feet.

799. *PTEROCLES ARENARIUS*. Large Sand-Grouse.

Found in some numbers about Umballah at certain seasons ; but when I was there (November 1866) they had not arrived. However, some two score were sent down to the late Dr. Scott by a civil engineer in railway employ at Jullunder, from which I made the following notes :—

	Length.	Wing.	Tail.	Tarsus.	Bill from front.	Bill from gape.	Extent.
♂	14.5	8.6	4	1.0625	.5	.75	27
♀	14.75	9	4.5	1.125	.5	.75	27

An albinoscent or *quasi*-albinoscent specimen (a presumed female) differs from the rest in being all over of a light fulvous colour, with the irides light grey instead of dark brown as usual : the belly is brown instead of black ; and the dark markings usual to the females on the upper parts are in this specimen of a faint brown hue.

Out of the forty originally sent, ten had expired on the road on arrival at Umballah ; but the rest were well and healthy, and out of these latter I selected a dozen, six of either sex, with the view of taking them with me to England for the gardens of the Zoological Society ; but two of them died before I reached Calcutta, and I therefore started from that port, on the 20th January 1867, with ten only, by the ship ‘ St. Lawrence,’ and, after a voyage of ninety-two days round the Cape of Good Hope, reached England about the end of April with only four left alive, which were deposited in the Zoological Gardens ; but they did not survive for any length of time. On the voyage they mostly killed themselves by jumping up and knocking their heads against the top of the box-cage I had constructed for them ; so that I hope this hint, to have a net or something soft stretched across the cage two-thirds of the height from the bottom, may enable future collectors to bring them home safely.

At Jullunder these birds are caught in nets by the natives in

great numbers, and are kept by the Europeans there and fattened for the table like Quails, being fed up for this purpose: they thrive there admirably in confinement. They are particularly heavy birds for their size, and strong in proportion. In fact I should call this the most muscular bird for its size that we have in India.

800. *PTEROCLES FASCIATUS*. Painted Sand-Grouse.

Procured by me at Morar, near Gwalior, in December 1866. The following dimensions are from specimens in the flesh:—

	Length.	Wing.	Tail.	Tarsus.	Spread foot.	Bill from front.	Bill from gape.	Extent.
♂	11·25	6·875	3·125	·9375	1·125	·5	·5625	22·5
♀	10	6·625	2·375*	·9375	·9375	·5	·5625	20·75
♂	10·5	6·25	2·751	1		·5625	·6875	19
♀	10·5	6·5	2·875	1		·5	·5625	20·5

Bill dirty red, legs greenish-yellow in the male, dark green in the female, orbit light greenish-yellow in both sexes; the tarsus is feathered down to the foot in front, but bare behind. The dimensions of the first male somewhat exceed those given by Dr. Jerdon. The late Dr. Scott received a pair killed within twenty miles of Umballah from an ative shikarry, and, writing under date August 2nd 1867, says:—"This is the first time I have heard of this species occurring in the neighbourhood of Umballah; and, together with *P. arenarius* and *P. exustus*, it makes the third species of the genus found in that locality out of only four which are known to inhabit India."

802. *PTEROCLES EXUSTUS*. Common Sand-Grouse.

Not only this, but all Sand-Grouse in India are known commonly to sportsmen as "Rock-Pigeon." I found this species abundant about Umballah and Morar, near Gwalior, in the cold weather. The following are the dimensions of a male killed at Umballah on 16th November, 1866:—Length 13; wing 6·5; tail 3·875; tarsus 1; bill, from front ·5, from gape ·625; extent 21·75. This agrees fairly with Dr. Jerdon's measurements, except in the tail, which he makes "5½ to 6," surely an error.

A specimen from Morar, 29th December, 1866, measured:—Length 11·75; wing 6·25; tail 3·75; tarsus ·9375; bill, from

* Slightly damaged.

front .4375, from gape .5625; extent 20. The bill and orbital skin in this species are blue.

803. *PAVO CRISTATUS*. Common Peacock.

This bird is so universally known that further description is almost useless, and I need only mention a native idea regarding it—that in the jungles frequented by tigers Peafowl are sure to abound; in fact the sight of one in the jungle is a pretty sure sign for some one in the party to say, “You may now look out for a tiger.” I doubt myself if there is really any connexion between the two except that Peafowl are very wary birds, and perhaps the tiger is naturally attracted to them by their quickness in showing the approach of an enemy. On one occasion, when passing through the Maldah jheel in a boat, and being hard up for food, I saw some Peafowl on the shore and wanted to land to kill one; but the boatmen were afraid of accompanying me, on account of tigers; so I had to go by myself, when I shot a fine Peacock and ate nothing else for some days, until I was quite tired and sick of it.

Pavo muticus I have seen in captivity at Moulmein, where my friend Colonel Brown had a young one which used to walk at will about the house and grounds, and knew as well as possible the hours for meals, at which it was a regular visitor; but it invariably waited until fed, and never attempted to steal from the table. This bird, I think, was afterwards sent home to the gardens of the Zoological Society of London.

804. *LOPHOPHORUS IMPEYANUS*. Monaul Pheasant.

This gorgeous bird is found in the interior of Sikkim and on the higher hills beyond Simla; but I never came across it in the wild state, although I procured several skins from native shikarries.

805. *CERJORNIS SATYRA*. Sikkim Horned Pheasant.

I first met with this handsome bird near Darjeeling, when on the march from that station to Mount Tongloo in 1862, but failed to secure a specimen, although I heard their booming call both morning and evening. Some fine specimens of this species were sent down by Tchebu Llama for exhibition in Calcutta at the Agricultural Show held there in 1865, and, I fancy, were sent on thence to England*.

* The dimensions of this species are given by Lieut.-Colonel Tickell, in N. S.—VOL. IV.

806. *CERIORNIS MELANOCEPHALA*. Simla Horned Pheasant.

Not uncommon in the interior beyond Simla. On the 10th June, 1866, I made the following note on a fine male shot by a friend at the beginning of that month which was forwarded for my inspection, and which had the gular skin and horns when first killed, according to his account, like "scarlet velvet." When the specimen reached me this had dried up, and then the soft parts had the usual appearance of having been purple in the middle, edged with blue. I never met with this bird in a wild state, as I was too ill during my stay at Simla to go out after them.

808. *PUCRASIA MACROLOPHA*. Pukras Pheasant.

Specimens were procured by me in 1866 in some numbers from Captain Begbie, who lived some forty miles from Simla, in the interior, at Kotgurh, near which, I believe, he employs natives to capture them; but the bird was never observed wild by me.

809. *PHASIANUS WALLICHI*. Cheer Pheasant.

This, our Indian representative of the English Pheasant, is not nearly such a handsome bird as that. I procured a specimen in the flesh at Simla in 1866, which was shot by a native a short distance from the station, but have not recorded anything further about it.

810. *GALLOPHASIS ALBOCRISTATUS*. White-crested Kallege Pheasant.

This species is tolerably abundant above Simla, where I procured several specimens in the flesh in 1866, and made the following notes at Mahasoo, October 1866:—

	Length.	Wing.	Tail.	Tarsus.	Spread foot.	Bill, from front.	Bill, from gape.	Extent.
1. ♂	25·5	9	10·75	2·75	3·375	1	1·25	27·5
2. ♀	21·5	8·25	8·25	2·5	3	1	1·25	24·5
3. ♂	26	8·75	11	2·75	3·25	1·0625	1·375	29

the last being a remarkably fine male in good plumage.

his able paper in the 'Field' newspaper of April 7th, 1866, p. 294, on "Our two species of *Ceriornis*," as follows:—♂. Length 24 to 27 inches, wing 10 to 11, tail 9 to 11, tarsus $3\frac{1}{2}$, middle toe $2\frac{3}{4}$, bill 1 inch.

Dr. Jerdon mentions the singular drumming noise made by the male. With respect to *Phasianus lineatus*, which is, in my opinion, a true Kallege, I may mention that the Burmese take advantage of this habit of the birds, and by imitating it with a rough kind of machine catch numbers of the latter species. It is like the crow of a cock, a kind of challenge uttered by one male to excite another to a battle—in “defiance of his fellows.”

811. GALLOPHASIS MELANONOTUS. Sikkim Kallege Pheasant.

Common about Darjeeling at all elevations between 2000 and 7000 feet, and also occurs abundantly in the interior of Sikkim. I procured feral specimens of this bird, on one occasion in a ravine below Punkabarry, at the very foot of the hills, on another in Major Wardroper's plantation at Darjeeling (about 6000 feet), and found them abundant at Rinchingpoong in Sikkim (from 5000 to 6000 feet), where, when put up by a dog, they took to trees and were easily shot. They roost on the same bough every night; and consequently the exact locality is easily found by the number of white droppings which accumulate on the ground below. They were generally met with in pairs or small parties of three and four.

812. GALLUS FERRUGINEUS. Red Jungle-fowl.

I found this bird common about Julpigoorie and the foot of the Himalayas, and also in the valleys in the interior of the hills beyond Darjeeling, having killed specimens in the Rungeet valley near that station, and observed it in the interior of Sikkim, both at Namtchi and at Rinchingpoong; but it is not so abundant there as it is throughout the Sikkim and Bhootan terai, or strip of jungle-country at the foot of the hills. I also found it far from uncommon along the banks of streams in the Maunbhoom district in 1864-65, and under the hills near Umballah in 1866, whence I procured a pair in the November of that year.

	Length.	Wing.	Tail.	Tarsus.	Spread foot.	Spur.	Bill, from front.	Bill, from gape.	Extent.
♂	22·5	8·95	10·5	3·75	3·25	1	·6875	1·812	
♀	24	8·5	10·5	3·75	3·25	1	·6875	1·812	27·5

Both of these specimens weighed 2 lb. after being gutted. I

have also procured examples in the valley of the Salween River, in the Tennasserim provinces of Burmah. The best shooting I ever got at this species was at Julpigoorie, where the nullas, or beds of streams, in the neighbourhood, which were common in that country, and filled with jungle, gave cover to very many of these birds; and when put up by beaters they fly out at a considerable pace, and require a good knock-down blow to bag them. They run, too, a great deal; and in the Maunbhoom district the native shikarries used to get many of them by placing corn near some water in the half-dried-up beds of the streams, and then shooting them when they came there both in the early morning and evening both to eat and drink.

815. *GALLOPERDIX LUNULOSA*. Painted Spur-fowl.

I came across this handsome Spur-fowl for the first time in the Maunbhoom district, where it is, to the best of my belief, the only species known, although one of my European assistants told me he had on one occasion shot there a "kind of hybrid—half a partridge, half a fowl," which might have been *G. spaldicea*; but I never again met with it myself. The specimen in question was unfortunately cooked and eaten before I had a chance of examining it personally. This species is tolerably abundant in Maunbhoom. It affects exclusively the stony hills and jungle at their base. It is seldom seen, except when beating for large game, such as Bears, Tigers, Leopards, or Deer. It dodges about with great facility, like a Rat or Rabbit, when some distance off, amongst the rocks, and, as it runs with the greatest ease, is not easily flushed; when it does rise, it flies but a short distance. In habits it is much more like a Fowl than a Partridge.

816. *TETRAOGALLUS HIMALAYENSIS*. Himalayan Snow-Cock.

Of this fine bird I only procured a single specimen, in the shop of a native dealer in Simla in 1866, and have never seen a wild living specimen of it, although in the skin they are, apparently, not uncommonly brought into that station by native shikarries, chiefly in the winter months.

817. *LERWA NIVICOLA*. Snow-Partridge.

I was unfortunately not well enough, when at Simla in 1866,

to penetrate into the haunts of this species, but procured a pair there from the shop of a European trader, who had bought them from the native shikarries in winter. I had to pay for the same at the rate of 8s. a pair, which seems an exorbitant price to one in England, but is thought little of by the Simla ladies, who are the principal purchasers of such skins for their hats.

818. *FRANCOLINUS VULGARIS*. Black Partridge.

This handsome and game-looking bird occurred to me at Julpigoorie, on the Bhootan terai, in 1860, in the Maunbhoom district* and at Maldah, in Lower Bengal, in 1864, at Kurnaul and Umballah in 1865, and at Kotgurh, near Simla, in 1866. In this last locality it was procured by a friend. It is not the commonest Partridge in India—but where it does occur affords by far the best sport, especially with dogs; and for the table its flesh is infinitely superior to that of the Grey or Common Partridge. Its occurrence in the Maunbhoom district is apparently unknown to Dr. Jerdon; and as I have since procured the next species, I can with certainty say now that I did not confound those found in Maunbhoom with that species. A female specimen in the flesh, shot at Pathurkhuta, February 19, 1865, measured in the wing 5·75, and in the length of the tarsus 1·625. It is called by the natives of Maunbhoom the “Chee-teeree Kunniah,” probably from the call, which I should syllable “tŭk, tēē-tēē-tēē-rēē-tēē.”

819. *FRANCOLINUS PICTUS*. Painted Partridge.

This rare bird occurs plentifully around Morar, in the North-west Provinces, near Gwalior. It inhabits the low jungle-covered hills in that vicinity, and does not appear to frequent the standing crops, or such places near water as are invariably found to be the habitat of the Black or preceding species. On first seeing fresh specimens of this bird it struck me as being somewhat like the female *F. vulgaris*, or more like what I should imagine would be the result of a cross between a female of that species† and a Jungle-Cock (*Gallus*, sp.). The legs are of a

* Cf. Ibis, 1867, p. 157.

† It might easily be mistaken for this bird, were it not for its peculiar reddish-brown head.

bright orange-red, the bill horny black ; and the tail is black, not "deep brown" as in Dr. Jerdon's description. It is very difficult to distinguish between the sexes ; and the only way I could possibly do it without dissection was by observing the feathers of the breast, the bars on which I found in the male to be interrupted, and in the female continuous across. The bill may perhaps be more correctly described as dark above and fleshy horn-colour beneath ; and the legs are dull orange. The dimensions of both sexes, killed at Morar, are as follows :—

	Length.	Wing.	Tail.	Tarsus.	Spread foot.	Bill, from front.	Bill, from gape.	Extent.
♂ ..	12·5	5·375	2·875	1·5	1·75	·75	·875	18·75
♀ ..	12	5·25	3·125	1·5	1·75	·75	·875	18·25

In the wing-measurement I have only taken the length of the primary feathers, the tertials exceed them by ·5 or ·75.

820. CACCABIS CHUKAR. Chukor Partridge.

This bird is very generally found on the hills about Simla ; and the first time I saw wild specimens was in April 1866, when, marching up to that station from Umballah by the new cart-road, I put a pair up off the road-side. I have since had numerous skins sent to me from Kotgurh, a small village in the interior, some fifty miles beyond Simla, where numbers are annually snared by the natives, who sell their skins to the European inhabitants of Simla. They seem to frequent tolerably open hill-sides where *Cacti* abound. Tame specimens are frequently seen in most of the up-country stations, as they are easily kept, and become great pets.

822. ORTYGORNIS PONTICERIANA. Grey Partridge.

This is emphatically the *common* Indian species, and, although not found on the alluvial soil of Lower Bengal, occurs abundantly directly we reach the uplands of the Maunbhoom district, where the natives catch numbers in "*phans*," or upright nooses into which the wild birds are attracted by a caged one. I have also shot them near Colgong, on the Ganges, and all along the hilly portion of the Grand Trunk road from Raneegunje, up beyond the mountain of Parisnâth. They breed in Maunbhoom ; and their eggs are of a cream-colour and unspotted. The call

may be syllabled “thŭk-thŭk-thŭk-pătēlā-pătēlā-pătēlā.” With regard to its perching on “low trees and shrubs,” as stated by Dr. Jerdon, I would refer the reader to Dr. Adams’s statement (‘Wanderings of a Naturalist in India,’ p. 71). When found near villages, this species has got the unenviable reputation of feeding on human fæces ; but I must say, with Dr. Jerdon, that this accusation is probably unjust ; for I never saw it do so, or found it to be the case.

823. ORTYGORNIS GULARIS. Kyah Partridge.

I have found this fine Francolin plentifully about Caragola Ghaut, on the Ganges, where Dr. Jerdon and I had good sport with it. I have observed it also at Rajmehal in sandy jungle-covered “churs” in the river, and near Colgong, on higher ground or hedges, when the river was flooded in October. I have also flushed what I am nearly sure was this species in wooded nullahs in the terai, near Julpigoorie. It is undoubtedly our largest Indian Partridge, and gives grand sport. Dr. Jerdon’s account of its habit is very good.

824. ARBORICOLA TORQUEOLA. Black-throated Hill-Partridge.

I have seen this bird only on the higher hills near Darjeeling and in Sikkim, where, however, according to my experience, it is far from common. On one occasion, in 1862, I observed some examples in thick dwarf bamboo on my way up to Mount Tongloo, at an elevation of about 8000 feet.

825. ARBORICOLA RUFOGULARIS. Rufous-throated Hill-Partridge.

This species, on the contrary, is much more abundant in Sikkim, and near Darjeeling inhabits a lower zone than the preceding, of from 4000 to 8000 feet in elevation. It is found generally in coveys*, and numbers are captured by the Lepchas, by calling them within shot, and taken into the station of Darjeeling for sale. These birds frequent such dense cover, that

* This is my experience of them, the reverse of what Mr. Blyth says (Ibis, 1867, p. 159) is their habit. I well remember noticing the fact, because this was the first Indian Partridge I had seen associating in any numbers.

shooting them in any other way is almost out of the question. I procured a single skin at Simla.

826. *PERDICULA CAMBAIENSIS*. Jungle Bush-Quail.

I have come across this pretty little game-bird in the Maunbhoom district, where it is tolerably abundant, and called by the natives "Juhar," and by the Southals in particular "Auriconnai." It occurs also in the jungles about Umballah, in the North-west Provinces, and in the Punjab; but it is not found in the swampy lowland of Lower Bengal. Dr. Jerdon's description of the difference between the sexes is not at all satisfactory, as I have previously noticed (*cf.* Ibis, 1867, p. 160); for I have found by dissection that some females were marked as he describes the males only to be, and *vice versa*.

Specimens shot at Morar, December 19, 1866, measured as follows:—

	Length.	Wing.	Tail.	Tarsus.	Spread foot.	Bill, from front.	Bill, from gape.	Extent.
A. ♂?	6·5	3	1·625	·9375	1·25	·4375	·5	10
B.	6·75	3·125	1·75	·9375	1·25	·4375	·5	10
C. (juv.)	6	3	1·5	·875	1·1875	·4375	·5	9·5

829. *COTURNIX COMMUNIS*. Large Grey Quail.

I have found this fine bird in almost every part of India that I have visited, but never in such numbers together as noticed by Dr. Jerdon. From twelve to fifteen brace is the most that I have been able to bag in an ordinary day's shooting—with Partridges, Hares, and so forth. Near Umballah they afford very good sport with a dog, and to my mind are the perfection of shooting of all birds of their size. They are frequently kept for the table, being fattened up in pits dug underground about Umballah and elsewhere. Both this and *C. coromandelica* occur in Maunbhoom.

831. *EXCALFACTORIA CHINENSIS*. Blue-breasted Quail.

I only once procured this bird (namely, at Maldah, in Lower Bengal, in October 1864, while out shooting), and was much taken with its extreme beauty and elegance. The legs were a bright orange-yellow.

832. *TURNIX TAIGOOR*. Black-breasted Bustard-Quail.

I procured this species sparingly near Barrackpore, in October

1864, and more abundantly in the Maunbhoom district, where it is not uncommon. The dimensions of a specimen procured on 5th March, 1865, are—Length 5·75; and no specimen that I ever got is, to the best of my recollection, equal in this respect to that given by Dr. Jerdon, “length about $6\frac{1}{2}$,” but I see that lower down on the same page he says, “length not quite 6 in.,” so that the first measurement given is probably a misprint. In Maunbhoom the natives have an ingenious method of catching this species alive, much as is described by him; and they frequently keep the female birds for fighting-purposes.

833. *TURNIX OCELLATA**. Hill Bustard-Quail.

A single specimen was once procured by me near Namitchi, in Sikkim.

834. *TURNIX DUSSUMIERI*†. Larger Button-Quail.

This has been often shot by me in Lower Bengal and at Julpigoorie; but I have nothing further recorded of its range or habits.

835. *TURNIX SYKESI*. Button-Quail.

The late Dr. Scott, who sent specimens to the Montrose Natural-History Society, records this species from Umballah. It occurs frequently north of the hilly country about Mount Parisnâth, and in Maunbhoom occasionally, to the best of my recollection.

836. *EUPODOTIS EDWARDSI*. Indian Bustard.

I have lately received a fine pair of this large Bustard from my brother, Lieut. Reginald Beavan, of the 22nd Punjab Native Infantry, who shot the male near Morar, in Gwalior, and bought the female from some native trappers, who catch them in that neighbourhood and bring them into Morar for sale to the officers and others who like them as a delicacy for the table. At Umballah in 1866 I saw several alive, which Dr. Jerdon had brought there, and which, I think, had been captured near the desert-country about Hurriana or Suia; but what he did with them

* [*Lege T. pugnax*; cf. *Ibis*, 1867, p. 161.—ED.]

† [*Lege T. tanki*; cf. *Ibis*, *ut supra*.—ED.]

eventually I never learnt. They do not occur in a wild state about Umballah.

838. *SYPHEOTIDES BENGALENSIS*. Bengal Florikin.

I have only met with this bird when out in the Bhootan dooars after Rhinoceros, when with the 73rd Native Infantry at Julpigoorie in 1859. Numbers used on these occasions to be flushed from thick grass when beaten up by our advancing line of elephants; and the males in flying showed a good deal of white on the wing. I never met with it elsewhere.

OTIS TETRAX, Linn. Little Bustard.

This was, I think, originally determined as an Indian species by my friend the late Dr. Scott, who first told Mr. Blyth of its existence at Peshawur (*Ibis*, 1867, p. 163); he has repeatedly given me the same information, which I am glad to have this opportunity of making public.

840. *CURSORIUS COROMANDELICUS*. Indian Courier-Plover.

Of this species I procured a pair at Lallroo, near Umballah, on the 14th of November, 1866. Dimensions as follows:—

Length.	Wing.	Tail.	Tarsus.	Spread foot.	Bill, from front.	Bill, from gape.	Extent.
A. 8·75	5·75	2·375	1·9375	1	·8125	1·1875	19
B. 9·375	6·125	2·375	2·25	1·125	·875	1·25	21·5

Two shot at Morar, December 19, 1866, measured as follows:—

Length.	Wing.	Tail.	Tarsus.	Spread foot.	Bill, from front.	Bill, from gape.	Extent.
A. 9·5	5·75	2·25	2·1875	1·125	1	1·25	20
B. 9·125	5·375	2·25	2·125	1·0625	·8125	1·125	18·5

In this bird the legs look as if they had been enamelled or painted white, as though they had been made “beautiful for ever.” The species is not uncommon in the cold weather at Umballah, frequenting chiefly ploughed land, in small flocks, but wary and difficult to get near. Seen more abundantly a month later at Morar, near Gwalior, where they frequent the open plain.

843. *GLAREOLA LACTEA*. Small Swallow-Plover.

I observed this species in some numbers on 16th February, 1864, on the sand-banks of the Damoodah River, on the out-

skirts of the Maunbhoom district. Swift-like, both in its flight and general aspect, I was much struck, I recollect, at the time, with this particularly chaste and elegant bird, which I never, before or since, recollect to have seen.

845. *CHARADRIUS LONGIPES*. Golden Plover.

I have found this species tolerably abundantly in the neighbourhood of Julpigoorie, but I do not recollect it at Maunbhoom. It is occasionally, I hear, found near Umballah.

847. *ÆGIALITIS PYRRHOTHORAX**. Lesser Sand-Plover.

Three specimens of this species were shot by me on the mud-banks of the Salween River, near Moulmein, on September 7th, 1865. Dimensions of one as then noted were—Length 7·25, wing 5, tail 1·875, bill, from front, 75, tarsus 1·25.

849. *ÆGIALITIS PHILIPPENSIS*†. Indian Ringed Plover.

I procured specimens at Ambekanuggur, in the Maunbhoom district, in December 1864, where also it was observed breeding in March by a late intimate friend, who gave me the information, as before recorded (P. Z. S. 1864, p. 376); but I did not see its nest myself, as stated by Mr. Blyth.

850. *ÆGIALITIS MINUTUS*. Lesser Ringed Plover.

I shot a pair out of a small flock which were feeding along the edge of a small tank near the Native-Infantry lines at Umballah in January 1866.

	Length.	Wing.	Tail.	Tarsus.	Bill, from front.	Extent.
A. . .	6·3	4·25	2·25	·875	·5	13
B. . .	6·5	4·5	2·5	·875	·5	13·5

The irides in both were reddish-brown, the legs flesh-coloured with a tinge of blue, the claws black, orbits bright yellow; bill black, yellow at the base.

852. *CHÆTUSIA GREGARIA*. Black-sided Lapwing.

A specimen was killed by me at Lallroo, near Umballah, on the 14th November, 1866; and this species is mentioned by the late Dr. Scott, who sent specimens from Umballah to the Montrose Museum.

* [*Lege* *Æ. mongolicus*; *cf.* *Ibis*, 1867, p. 164.—ED.]

† [*Æ. curonicus*, *fide* Blyth, *Ibis*, 1867, p. 164.—ED.]

Lallroo, November 14, 1866. Length 12; wing 8·125; tail 3·75; tarsus 2·5; spread foot 1·5; bill, from front 1·125, from gape 1·3125; extent 27·75. This specimen agrees with Dr. Jerdon's description of the species, except in the following particulars:—The head, instead of being "black," is ashy-grey with dark spots; the sides of the head and neck, instead of being "pale rufous," are ashy with a slight fulvous tinge; there is no "black" or "chestnut" at all on the abdomen, which, on the contrary, from the breast downwards, is pure white. Bill and legs black, and irides deep reddish brown.

853. *CHÆTUSIA LEUCURA*. White-tailed Lapwing.

A specimen now in Colonel Tytler's collection was procured by the late Dr. Scott at Babyn, near Umballah, in 1866; and he told me he did not think the figure of this species given in 'The Ibis' for 1865 (pl. x.) was a very good representation of the Indian bird.

855. *LOBIVANELLUS GOENSIS*. Red-wattled Lapwing.

Found abundant in the Maunbhoom district in 1864, and at Julpigoorie, in the Rungpore district of Lower Bengal, and generally almost everywhere in India. It is the "Tee-tee-du" of the Burmese; and of it a friend tells me:—"The Lapwing, in Burmese legends is one of the four animals which distress themselves unnecessarily. It is said to sleep on its back with its feet in the air, to prevent the sky from falling on the earth! The other three animals are the monkey, the Crane, and the earthworm. The monkey going to sleep in a tree comes down frequently (literally three times) during the night to feel if the earth is still in its place; the earthworm is so much afraid of devouring the whole earth that he spits it out again in the form of 'worm-casts'; and the Crane is so afraid of causing an earthquake when walking that he always treads very gingerly, as if stepping on eggs." This is a free translation made from a Burmese work, which at the least has the merit of showing that the Burmese must be a very observant people to notice the little everyday occurrences in nature which are here caricatured.

856. *SARCIOPHORUS BILOBUS*. Yellow-wattled Lapwing.

Procured in Maunbhoom in 1864, where it is rare, and again

at Umballah, November 14, 1866. The specimen from which the following dimensions were taken has the head of a dark brown instead of pure "black," as Dr. Jerdon says, with the bases of some of the feathers turning black. Length 10·5; wing 8; tail 3·5; tarsus 2·4375; spread of foot 1·125; bill, from front 1·125, from gape 1·0625; extent 25·5.

858. *ESACUS RECURVIROSTRIS*. Large Stone-Plover.

Procured by the late Dr. Scott near the Jumna River, in the Sewalik Hills, and sent by him to the Natural-History Society of Montrose.

859. *ÆDICNEMUS CREPITANS* *. Stone-Plover.

Not uncommon in the uplands of Maunbhoom, where I found them breeding in April (*Cf.* P. Z. S. 1864, p. 377). According to my experience they lay but two eggs, although they may possibly lay three as stated by Dr. Jerdon. I have only observed this species singly or in pairs, never in flocks as described by him.

863. *GRUS ANTIGONE*. Sarus† Crane.

Very common in some parts of India, more especially in the neighbourhood of Umballah. I have also noticed the species at Julpigoorie, and near Barrackpore, both stations in Lower Bengal, and more rarely in Maunbhoom.

866. *ANTHROPOIDES VIRGO*. Demoiselle Crane.

Generally called both by natives and European sportsmen in India the "Coolen." I saw large flights of them on the banks of the river Teesta, near Julpigoorie, in 1859, and also passing overhead when on Mount Tonglu in 1862, on their periodical migration from the uplands of Thibet to the plains of India. They keep up a peculiar call when in flight, by which they can easily be distinguished.

867. *SCOLOPAX RUSTICOLA*. Woodcock.

A specimen was sent to me in 1866 by Mr. Davis, of the Police, from Burmah, who shot it in the cold weather of 1865, at Thatone, near Moulmein. This is apparently the first record

* [*Æ. indicus*, Salvadori. *Cf.* Ibis, 1866, p. 415.—ED.]

† *Potius* "Siris."

of this species occurring so far to the south as the Tenasserim provinces of Burmah. I myself saw them appear regularly every evening at Rinchingpoong, in Sikkim, in November 1860, and shot one or two, but could not find where they fell, in the darkness. The late Major James Sherwill was with me at the time, and also saw them.

869. *GALLINAGO SOLITARIA*. Himalayan Solitary Snipe.

Dr. Jerdon says of this species that "no details of its peculiar haunts are recorded;" but he seems to have overlooked a paper by Mr. Hodgson, which will be found in the 'Gleanings in Science,' published in Calcutta (vol. iii. p. 238). I procured this species in Sikkim in October 1860, and sent Dr. Jerdon my two specimens in the flesh. I found them at the village of Seriong, on the further side of the Rumnam River from Darjeeeling, on the side of a hill, in a small open swamp, surrounded on all sides by dense cover, and recollect shooting them perfectly well, as the spring which caused the swamp yielded the first watercress of the common English species that I had met with, and I can well recall my delight at having made this double discovery the same morning.

870. *GALLINAGO STENURA*. Pin-tailed Snipe.

In a paper elsewhere published (P. Z. S. 1865, pp. 692-695) I have given some particulars of the occurrence of this Snipe about Barrackpore, where it is very plentiful, more so than the next species, arriving in September, and being replaced by that about the end of October or beginning of November. In 1864 I killed my first Pin-tailed Snipe, on the 27th September, which is rather a late average date; but this species appears to have been replaced almost entirely by the next by the 17th November. A fine specimen, killed by me at Ambekanuggur, in Maunbhoom, was larger than stated by Dr. Jerdon. Its length was 13.5 in. from the tip of the bill to the end of the middle toe. The bill was 2.75 in., and its weight was over four ounces.

In Moulmein I found that Snipe appeared very much earlier than in Lower Bengal; and on 22nd August, 1865, I note that "an officer of the 9th Madras Native Infantry went out to-day and killed seven or eight couple, which I did not get an oppor-

tunity of examining." On 17th October of the same year I note that an officer of the same regiment "shot three, all of which were Common Snipe in bad condition; but those killed lately by Colonel Brown at Martaban were all Pin-tailed; of these I examined seven or eight couple; and seven more killed the next day at Zwagaben plain were also Pin-tailed;" so that the conclusion we would draw from this seems to be that the present species comes first to India but last to Burmah; to settle this point, however, in a more satisfactory way can only be done by a further series of accurate notes taken two or three years in succession by some competent naturalist residing on the spot. Zwagaben is about twenty-five miles distant from Moulmein in a northerly or north-westerly direction (*cf.* P.Z.S. 1866, p. 2).

871. *GALLINAGO SCOLOPACINUS*. Common Snipe.

I procured this species abundantly both at Barrackpore and in the Maunbhoom district in 1864. At the former place I one day killed three flying, at one shot, when out shooting against some other officers, and thus made the best bag. A "wisp" of six rose suddenly, and I fired into "the brown" of them. In the neighbourhood of Julpigoorie I have noticed that, in April and May, when the sun begins to put forth his power, this species leaves the swampy ground and takes to high and grass-covered jungle, as if seeking the shade afforded by the bushes. Colonel Drury tells me that in the Gorruckpore district he has frequently found Snipe in high sugar-canes and "rehr dall" jungle, neither of which grow in swampy ground.

Dr. Jerdon says that "Snipe always rise with a piping call"; but, although they do so generally, I am quite sure that I have frequently flushed them without hearing any note uttered. The difference between this and the preceding species is not recognized by most sportsmen in India.

The Burmese call both the Snipe and Goatsucker "Mye-wote"—from their habit of dwelling on the earth, according to Dr. Mason, in his work on Burmah.

872. *GALLINAGO GALLINULA*. Jack Snipe.

First noticed by me on the 17th November in 1864, at Bar-

rackpore, where it occurs frequently sometimes, sometimes rarely. I have seen it in most abundance in a jheel at Berhampore, near Moorshedabad; but the species seems most erratic in its wanderings, and takes to certain spots where one is sure to come across them year after year, while it entirely avoids just as likely-looking ground within a short distance.

873. *RHYNCHÆA BENGALENSIS*. Painted Snipe.³

A common bird in some parts of India. I noticed it in the neighbourhood of Barrackpore in the cold weather of 1864 (*cf.* P. Z. S. 1865, p. 694), and in Maunbhoom in March of the same year, and find that I have noted that the last examples were probably breeding, although flushed in dry, bush-covered jungle, away from water. It seems to me that this bird in its habits is much more nearly allied to the Rails than to the Snipes. It is a very easy bird to shoot, from its slow and steady flight, but is frequently missed by the impatient "griff.", who will not take time enough over his shot, and when bagged is brought home in great triumph, as it is regarded by such as a most wonderful Snipe!

877. *NUMENIUS ARQUATA* *. Curlew.

Either this or the Whimbrel (*N. phæopus*) was observed by me in great abundance about Moulmein, in Burmah, in 1865, at the beginning of the cold weather. They were so wild, I could not secure a single specimen.

879. *IBIDORHYNCHUS STRUTHERSI*. Red-billed Curlew.

To the best of my recollection, I have seen this species in the same spot in Sikkim as mentioned by Dr. Jerdon—the banks of the Great Rungeet River, distant twelve miles from Darjeeling†.

* [*N. lineatus*, Cuv. *vide* Blyth, Ibis, 1867, pp. 167, 168.—ED.]

† [We take this opportunity of mentioning that in 'The Field' newspaper for Sept. 28, 1867, in an article entitled "Two Days on the Kirghis Steppes, by Count Alexis Tolstoy," there appeared the following statement in reference to the southern part of the province of Orenbourg, on the banks of the river Oural:—"Steppe curlews strutted on the road, with red beaks and red legs, called magpies from the colour of their plumage."

Mr. Gurney was kind enough to call our attention to the passage, and

892. *ACTITIS OCHROPUS*. Green Sandpiper.

A very abundant bird in India, and found almost everywhere. I have shot it several times at Barrackpore and Julpigoorie in Bengal, and at Umballah, whence I have noted a specimen which was killed on the 30th of October 1866, and measured:—Length 9·5; wing 5·625; tail 2·5; tarsus 1·375; spread of foot 1·625; extent 17·5; bill, from front 1·375, from gape 1·5.

893. *ACTITIS HYPOLEUCUS*. Common Sandpiper.

Not so common as the preceding species. A specimen killed at Umballah, October 30, 1866, is in length 7·625; wing 4·25; tail 2·125; tarsus ·9375; spread of foot, including hind toe, 1·25; bill, from front ·9375, from gape 1; extent 13.

894. *TOTANUS GLOTTIS*. Greenshanks.898. *HIMANTOPUS CANDIDUS*. Stilt.

Both these species are noted by the late Dr. Scott as having been procured by him at Umballah, and the specimens sent to the Natural-History Society of Montrose.

900. *METOPIDIUS INDICUS*. Bronze-winged Jacana.

Procured by me in the Maunbhoom district in 1864, where I found it inhabiting a small tank near a village. It was abundant also about Julpigoorie.

901. *HYDROPHASIANUS CHIRURGUS*. Pheasant-tailed Jacana.

Noticed by me abundantly in a “jheel” at Rungpore, and also, to the best of my recollection, at Berhampore, near Moorshedabad—both in Bengal.

902. *PORPHYRIO POLIOCEPHALUS*. Purple Coot.

Procured by me at the Burthee bheel, a large piece of water to the north-east of Barrackpore, when I first went out to India in 1858. Since then I have frequently met with this species in Bengal.

has suggested that the birds indicated were of the species mentioned in the text. If so, its range is much more westward than has been hitherto thought.—ED.]

903. *FULICA ATRA*. Bald Coot.

This species is the "Tildoobee" of my native Hindoostanee servants, whose knowledge of ornithology, however, is very limited. I procured it at Ambekanuggur, in Maunbhoom, in 1865. A specimen at Umballah, on November 3, 1866, measured as follows:—Length 16; wings 7·5; tail 2·25; tarsus 2·25; middle toe and claw 3·5; irides purple-red, hardly "bloodred" as stated by Jerdon. I have seen this species in the tanks at Umballah, in the "Phool bagh" (literally "garden of flowers").

915. *LEPTOPTILUS ARGALA*. Gigantic Stork.

This bird, well known as the "Adjutant," is common throughout Calcutta and Lower Bengal generally; and I find that I had noted regarding it that it roosts in company on trees, and every evening there is great squabbling and clattering of beaks for the best places, which generally results in the weakest birds being obliged to betake themselves elsewhere. They do not appear to like roosting on buildings, though frequently seen on them during the day. The quick chattering noise caused by clapping both mandibles together is not at all unlike the sound of "water flowing from a narrow-necked bottle," though the idea is so ridiculed by Dr. Jerdon; and it is the only sound to which they appear capable of giving utterance. The pouch can evidently be dilated or contracted at the pleasure of the bird, and in birds of the preceding year is very small. In May their legs are pure white in colour, and appear to be covered with a loose skin which is partially shredding off. Dated "Fort William, May 1865," when I was an inmate of the Hospital there.

The nest of this species has been observed in India by a near relative of my own, Lieut.-Col. Charles Drury, of the Bengal Staff Corps. It contained two young ones, and was found by him at Munsoor Ghaut, (north of the Gorruckpore district, but not in the terai), on the high bank, near a stream, on or about the 15th of December 1861. The old birds were put off the nest, which was in a semul or cotton-tree; and a shot fired into the tree made the young birds, which were fully fledged, come out and sit on one of the boughs, whence one was bagged by

another shot. I have already recorded (P. Z. S. 1866, p. 3) my ineffectual attempts to procure the egg of this species, and to see its nest; and the above is the only instance I know in which the bird has been known to breed in India proper, besides that mentioned by Dr. Jerdon on Mr. Frith's authority.

916. *LEPTOPTILUS JAVANICUS*. Hair-crested Stork.

Observed by me frequently in 1865 in Burmah (*cf.* P. Z. S. 1867, p. 762), where it is called the Javan Adjutant.

917. *MYCTERIA AUSTRALIS*. Black-necked Stork or Jahin-Stork.

I noticed this species at the same time on my trip down the Thatone Creek, in Burmah, on the 4th of October 1865 (*cf.* P. Z. S. *loc. cit.*).

920. *CICONIA LEUCOCEPHALA*. White-necked Stork.

Procured by me at Poncha, in Maunbhoom, in February 1865.

923. *ARDEA CINEREA*. Blue Heron.

Apparently commonly distributed throughout India; and I have met with it abundantly, especially about Julpigoorie and Barrackpore, in Lower Bengal. It also occurs about Umballah, as I learned from the late Dr. Scott.

924. *ARDEA PURPUREA*. Purple Heron.

Perhaps equally common in its distribution as the previous species. I have killed it on the Ganges at Caragola Ghaut, about Maldah, and the saltwater lake close to Calcutta.

925. *HERODIAS ALBA*. Large Egret.

Not uncommon over the whole of Lower Bengal. This and other "Paddy-Birds" (as they are generally called by English sportsmen) are by the natives all called "Bōglă," not "bagla" as stated by Dr. Jerdon.

927. *HERODIAS GARZETTA*. Little Egret.

Equally common as the last species, and, like it, breeds in company on trees in or near some native village. I noticed both species in Burmah in 1865.

929. *BUPHUS COROMANDUS*. Cattle-Egret.

Abundant in the Maunbhoom district, and doubtless else-

where, but is so commonly mixed up with other kinds of Egret that I regret that I have hitherto considered this group to be too commonly distributed to make any observations on them, an error which I hope to rectify by further research. "O! it is only a 'Paddy-bird,'" is an exclamation too frequently used in India; and I hope hereafter to be able to pay more attention than I have hitherto done to this much-neglected group.

930. ARDEOLA LEUCOPTERA*. Pond-Heron.

This is *par excellence* the "Paddy-bird" of Europeans in India, and to it more especially the above remarks apply; for it is the very commonest of common birds in India: not a pond can be seen which does not contain one or two; but I never yet came across its nest, although doubtless where they do occur they are common enough.

936. BOTAURUS STELLARIS. Bittern.

I have procured this well-known bird, when out with Dr. Jerdon, in the neighbourhood of Caragola Ghaut, on the Ganges, and also near Julpigoorie; but it is nowhere very common. I cannot say that I ever tried this species on the table, although he says it is excellent eating; but brother officers have told me it was just the contrary. As our ancestors liked it, I fancy that the time of year when killed, or perhaps the tropical climate of Bengal, may perhaps account for its being considered disagreeable by some.

937. NYCTICORAX GRISEUS. Night-Heron.

This bird is very common in the Maunbhoom district, and about Julpigoorie in the district of Rungpore. The young of the year differs very much from the old bird, and is not sufficiently well discriminated by Dr. Jerdon. Its cry is loud and peculiar.

938. TANTALUS LEUCOCEPHALUS. Pelican-Ibis.

Found in immense numbers about Moulmein, in Burmah, as described more fully below.

940. ANASTOMUS OSCITANS. Shell-Ibis.

I only met with this species on one occasion, of which I have

* [Potius *A. grayi*. Cf. Ibis, 1867, pp. 172, 173.—ED.]

elsewhere made mention (P. Z. S. 1865, p. 692); so that its habitat is probably somewhat restricted.

941. THRESCIORNIS MELANOCEPHALUS. White Ibis.

I saw this bird at Julpigoorie in 1860; and again at Beera-chalee, Maunbhoom, on the 24th of March 1865, I observed four, which had probably come there to breed. The dimensions given are those of one of these. I procured a specimen in Burmah, on the Thatone creek near Moulmein, on the 4th of October 1865. It was feeding on a sandbank in the middle of the river, together with a number of Pelicans of different species, and was the only one of the species I ever came across there. Length 28; wing 14; bill, from front nearly 7; tarsus 4; middle toe to end of claw 4.

It was a sight really worth seeing, especially for an ornithologist, on this trip down the Thatone Creek. For miles the water was literally white with Pelicans, which were making the most of the ebb-tide:—some fishing in line, and thus driving their finny prey into a corner where it might be devoured at leisure; others, on their own account, filling their pouch with amazing rapidity; while along the banks, drawn up in single file, like a company of infantry, at equal distances from each other, were numbers of the Pelican-Ibis (*Tantalus leucocephalus*), each with its open beak immersed in the water, patiently waiting to snap up any unwary fish that, frightened by the Pelicans in mid-stream, might happen to run against it. The creek appears to swarm with various fish, which, I am told, come up from the sea every cold season for the sake of depositing their spawn amongst the standing paddy in the plains; and those then going down were probably the young of the year. The bushes on either bank were filled with the common Paddy-bird (*Ardeola leucoptera*), while here and there an occasional Black-headed Kingfisher (*Halcyon atricapillus*) dashed across the stream. The bare boughs of the high trees which bordered this creek were covered with Pelicans and *Tantali*—of the latter, both half-grown young and old birds; and wheeling in air, often at a great height, might be seen the serried ranks and glistening white plumage of fresh arrivals in this, to them, magnificent land of promise. Further down the creek, towards the sea,

where sandbanks rise up here and there in mid-stream, we see other varieties of Waders, mixed up with the Pelicans and *Tantali*—troops of Egrets and Grey Herons (*Ardea cinerea*), Terns of various species seated on the mud in large troops, Sandpipers and Stints all busily at work, a single White Ibis of the present species gravely stalking about in the midst of a troop of Pelicans, Curlews in threes and fours, and an occasional Fish-Eagle (*Haliaeetus leucogaster*) on some dry bough which overhangs the stream, whilst above, on the wing and mingled with screaming Terns in their flight, are numerous Kites (*Haliastur indus* and *Milvus govinda*), which help to make up the ornithological features in this animated scene.

942. GERONTICUS PAPILLOUS. Warty-headed Ibis.

This bird is better known to me by the name, usually given to it by sportsmen in India, of "Black Curlew", although of course the latter is a misnomer. I procured specimens in the Maunbhoom district at Maknu, near Ambekanuggur, on the 1st of January 1865, and recollect having observed the bird at Julpigoorie, where it was considered very fair eating, and often shot on that account.

945. ANSER CINEREUS. Grey Goose.

Tolerably common about Umballah in the cold weather, especially so in January 1866, when I tried to stalk some, but signally failed. I find that the late Dr. Scott remarks of this species that on the 3rd and 4th of March 1866 vast flocks were seen passing over Umballah, leaving for the colder lakes of Thibet. In the preceding year (1865) the rain which fell at the end of February and the beginning of March caused them to leave later in their annual migrations; and he mentions that on the 7th of March he saw two flights of Geese, and on the 8th and 9th of the same month "more ditto"; while on the 14th of March 1865 only a small flight were to be seen high in air over the racecourse. In 1864 he notices having seen Wild Geese passing north on the 28th and 29th of February; and in 1863 the dates were respectively February 27 and 28 "of Geese leaving the plains."

949. *ANSER INDICUS*. Bar-headed Goose.

I recollect, at Umballah in 1866, being dreadfully taken in by purchasing one of these handsome Geese from a native for the table, but found it so horribly tough that, besides losing my dinner, I lost the two rupees which I had been green enough to pay for it. They occur in large numbers around Umballah, and are captured by the natives, who manage to delude the European inhabitants of that Station into buying them for the table.

951. *NETTAPUS COROMANDELIANUS*. White-bodied Goose-Teal.

This is invariably called the "Cotton-Teal" by sportsmen in India, where it is (in Lower Bengal and Maunbhoom more especially) very abundant, and has many a time given me not only a good day's sport, but a good addition to the kitchen. I have seen this species breeding in trees in the Maldah and Purneah districts, but never actually took a nest.

952. *DENDROCYGNA AUSUREE**. Whistling Teal.

This and the Cotton-Teal are by far the most numerous of the Duck-tribe in the tanks of the Maunbhoom district, which, indeed, from its naturally dry climate, does not attract any other kinds; but here two species are almost invariably found associated together, though in separate flocks, on the tanks near which the villages are usually built, and where in addition a Snipe or two may be picked up by walking along the edge. A very fair bag may be made, as both these species are very loth to quit the water, and, when they do fly, may be easily marked down on the nearest piece of water, and then driven backwards and forwards between it and their original tank, giving plenty of chances to a slow shot.

I believe that both these birds breed in the Maunbhoom district, although I have never been lucky enough to find their nests.

954. *CASARCA RUTILA*. Ruddy Sheldrake.

The "Brahminy Duck," as it is commonly called, is in habits

* [*Potius D. arcuata*. Cf. Ibis, 1867, p. 175.—ED.]

much more of a Goose than a Duck. Many a time have I tried to stalk a pair of these birds on the sandbanks of the Teesta River, at Julpigoorie; but never could I manage to get within shot, as they are very wary, and give the unfortunate "griff." many a weary and useless trudge under a broiling sun.

957. SPATULA CLYPEATA. Shoveller.

Shot near Umballah in January 1866, whence it is also recorded by the late Dr. Scott as having been sent by him to the Montrose Museum. I have also procured this well-known Duck at Julpigoorie and near Barrackpore.

958. ANAS BOSCHAS. Mallard.

Common about Umballah in the cold weather, but is said not to occur in Lower Bengal (*cf.* Ibis, 1867, p. 176).

959. ANAS PÆCILORHYNCHA. Spotted-billed Duck.

I have met with this fine bird only at Julpigoorie, on the river Teesta, in 1859, and in the Maunbhoom district in 1864. It is never seen in flocks, but generally in pairs, and is not at all a common species.

961. CHAULELASMUS STREPERUS. Gadwall.

Of common occurrence near Julpigoorie, but not so often seen in other parts of Lower Bengal.

962. DAFILA ACUTA. Pintail Duck.

Abundant about Umballah, but not observed in Lower Bengal.

963. MARECA PENELOPE. Widgeon.

964. QUERQUEDULA CRECCA. Common Teal.

Both these species are common about Umballah. The latter is occasionally met with in Maunbhoom, but not so abundant there as *Q. ciria*.

967. BRANTA RUFINA. Red-crested Pochard.

Newly caught specimens were brought into Umballah for sale from Kurnaul in January 1866.

972. MERGUS CASTOR. Merganser.

I have shot specimens of this species on the Great Rungeet

River beyond Darjeeling, taking it for a Duck until I knew better.

975. *PODICEPS PHILIPPENSIS*. Little Grebe.

Mentioned by the late Dr. Scott as having been presented to the Montrose Museum, and procured by him from the river Jumna, near the Sewalik Hills of the North-west Provinces of India. The species is abundant in Maunbhoom.

985. *SEENA AURANTIA*. Large River-Tern.

Umballah, Nov. 15, 1866. Length 17; wing 10·25; tail 7·75; tarsus ·75; spread of foot 1·375; bill, from front 1·5, from gape 2·25; extent 32·75 inches. The young (?) bird has a good deal of "pepper-and-salt" grey mixed on the head instead of pure black as in the adult, and dark wavy edgings to the feathers of the upper part. The bill and legs are of a paler orange-yellow.

While on the subject of Terns I may mention that I procured a species resembling *S. javanica*, which, from my description, was apparently unknown to Dr. Jerdon, and which I characterized as being, perhaps, his

988. *STERNULA MINUTA*. Little Tern.

Should it, however, be a new species, I would propose for it the name *S. JERDONI*, although perhaps it may be *S. orientalis*, Licht., or that mentioned by Mr. Gould (P. Z. S. 1855, p. 50). It agrees tolerably well with Dr. Jerdon's description of *S. minuta*; but all the dimensions are much larger. I procured this specimen in Burmah at Thatong, near Moulmein, but on the Martaban side of the river, on 1st October, 1865. Its dimensions were as follows:—Length 13 inches; wing 10; tail 4·375, the outer tail-feathers exceeding the rest by 1 inch; bill, from front 1·62; tarsus ·75; irides deep brown, nearly black; wing extending ·75 inch beyond tail. This species is found in considerable numbers on the Thatong creek; and some (probably adult birds) have the head pure black. In the present specimen it is pearly grey, slightly tinged only with black, which becomes more conspicuous on the nape, and extends as a black line across the eye and ear-coverts. The bill is yellow, tipped with black, and the feet a deep orange, with black claws. After reading my

MS. description of this bird, Dr. Jerdon told me it was allied to *S. javanica* but was utterly unknown to him.

Another species of Tern procured in Burmah, also near Thattong, is unknown to me; and as I am unable to refer it correctly to any known species, I provisionally will assign to it the name of

STERNA INNOTATA, sp. n.

Its position is somewhere between the genera *Gelochelidon* and *Onychoprion*, as characterized by Dr. Jerdon. Its specific characters are as follows:—Bill black, feet dull dark red; tail not forked, but nearly square in flight; wings long, and exceeding the tail by 2 inches; forehead white; head and nape brown, slightly mixed with white; a white line extends from the base of the bill under the eye to behind the ear-coverts. The under parts are pure white, the back and tail-coverts being a light grey colour, which is also the colour of the tail, but it is tipped with brown; the scapulars are grey, also tipped with brown; the primaries are white, with brown on either side of the shafts, the tips tinted with the same colour. The outermost part of the inner webs of the secondary quills are pale grey; and the tertials are brownish-grey, with white shafts, and hoary or pearl-grey on their outer webs. The toes are only partially webbed. The irides dark brown. Dimensions as follows:—Length 9·5 inches, wing 8·4, tail 3, tarsus ·8125, bill, from front, 1·125. This species was procured on October 4th, 1865, on the Thattong creek, not far from the sea, and within tidal influence. I believe that Dr. Jerdon saw my MS. account of this species in 1866, but did not at the time refer it to any known species.

991. ONYCHOPRION MELANAUCHEN. Black-naped Tern.

Occurred to me in the Andaman Islands (*cf.* P. Z. S. 1866, p. 556; Ibis, 1867, p. 334).

992. ONYCHOPRION ANÆSTHETUS. Brown-winged Tern.

On the 8th of June 1865, in lat. N. 15° 50', long. E. 92° 25', I noticed that a Tern or species of *Prion* was seen skimming over the waves, which was perhaps this species. This was in the bay of Bengal, on my voyage from Calcutta to the Andaman Islands.

994. *ANOUS TENUIROSTRIS* (Temm.). White-headed Noddy. On the same voyage I noticed, on June 3, 1865, that a specimen of this species came on board the brig I was then in, and settled on this fore-castle, but was too wary to be caught, although its leg had previously been broken. I fired at it, and, unluckily, it just managed to fall overboard. It may possibly have been *A. STOLIDUS*; but the tail-plumage was much abraded, and the white forehead distinctly visible (*cf.* Ibis 1867, p. 334).

995. *RHYNCHOPS ALBICOLLIS*. Indian Skimmer.

I recollect noticing several of these peculiar birds when travelling down the river Ganges from Allahabad to Rajmahal by steamer in 1859, and subsequently on the Teesta River at Julpi-gorie in 1860. It was often a puzzle to me as to the use of its peculiar bill; and I much doubt if that question has yet been satisfactorily settled.

996. *PHAETON RUBRICAUDA*. Red-tailed Tropic-bird.

Noticed by me on the voyage to the Andamans in 1865, but no specimens procured.

998. *SULA FIBER*. Booby.

On the same occasion I noticed, on the 3rd of June 1865, that this species is numerous in the Bay of Bengal. They fly low and very fast, skimming along the surface of the waves, apparently on the look-out for flying fish, which are also numerous, and pay no attention to the vessel; and on the 8th of the same month I noticed a large, pure white bird, which was probably a *Sula piscator*, the White Booby, which was seen high in the air at some distance from the vessel. At the same time there was a rudely constructed towing-net overboard bringing up plenty of sea-lice, and probably a species of *Physalia*, consisting of a triangular bladder which supports a body of a deep blue colour, and expands into tentacles with yellow tips. This, when seen floating in the water, is a most beautiful object, much more like a flower than a living animal.

1000. *ATTAGEN AQUILUS*. Frigate-bird.

All I have got to say of this species is, that Dr. Jerdon is evidently in error when he records this as figured at pl. 71 of

Gould's 'Birds of Australia'; for that plate represents *Phalacrocorax punctatus*; and although pl. 72 contains a figure of *Attagen ariel*, it is evidently not the same bird as this species.

Of the Pelican family it is not my intention to treat here, as, although I made numerous notes on the species found in Burmah, they have all been placed at the disposal of Mr. P. L. Selater, the zealous Secretary of the Zoological Society, and, I doubt not, will be duly treated by him in the memoir on the genus which he has in preparation.

Leaving this question, then, in his hands, I must now bring to a conclusion these notes on Indian birds from the pen of a "wild worker in the woods," hoping that, if hereafter they meet with favour from the readers of 'The Ibis,' I may thereby be encouraged, not only to continue my labours in the sunny land of India on my return thither, but also to obtain yet further opportunities of continuing my collections in the pleasant land of Burmah, endeavouring thoroughly to elucidate its at present comparatively little-known Ornis and Zoology generally.

South Penge Park,
July 18, 1868.

XXXII.—On some of the Birds of Prey of Central Bulgaria.

By C. FARMAN, C.E.*

IN laying the following notes before the readers of 'The Ibis,' I would merely remark, by way of preface, that a person so young in the study of ornithology can hardly be expected to be able to say much, if anything, that is new on the subject. Still, as the ornithology of Turkey has not received any very great amount of attention, and my opportunities of observing such birds as frequent a particular part of that country have been great, I have thought that a list of the birds of prey to be found in Central Bulgaria, with some few observations upon them, might be both interesting and useful.

The tract of country to which my observations have been confined is that district of Bulgaria which lies between the Danube, at Rustchuk, and Varna, on the Black Sea, in length about one

* [Kindly communicated by Mr. H. E. Dresser.—Ed.]

hundred and fifty miles, and varying in breadth from fifty to one hundred miles. Although my observations have been made principally (but by no means exclusively) along the route of the Varna and Rustchuk Railway, still I may conclude that the ornithology of this particular line of country is identical with that of the entire district before mentioned—because the whole of this tract of country is of the same character as that more particularly described, while the neighbouring districts which bound it geographically are entirely different, the Dobrountza*, to the eastward, being a high table-land, nearly level and devoid of trees, while to the westward rises the rough and rugged mountain-range of the Balkans.

Having been engaged in the construction of the Varna and Rustchuk Railway, and resident in the country for nearly three years, I have had ample opportunities of observing nearly all the birds which are found in this land of sun and frost; but as my attention has been more particularly directed towards the diurnal birds of prey, it is on this group alone that I will now venture to make any remarks, merely adding that every species here described has come under my own personal notice, and that I have specimens of nearly all obtained in this country.

VULTUR MONACHUS, Linn. Cinereous Vulture.

In Central Bulgaria this is by no means a common species; still it is to be met with, during the breeding-season and summer months, among the thickly wooded hills that border on the Pravidy Valley, and in other similar situations.

In habits I have found this species somewhat shy, principally frequenting the wooded districts, and seldom venturing into the open country. It also appears to be of an unsociable disposition, seldom mixing with the other Vultures, except to fraternize with them at their common feasts of carrion, when, indeed, they are frequently to be seen amicably feeding together off the same carcass.

I have noticed these birds only during the spring and summer; they certainly do not remain during the winter, and they are therefore (in some degree, at least) migratory.

* [For a notice of the ornithology of this district, see the entertaining paper in 'The Ibis' for 1861, pp. 361-374.—ED.]

Nidification with this species commences early in March, somewhat earlier than with the Griffon Vulture, in proof of which I may state that on the 30th of April, 1865, I found three young birds in three successive nests of the first, whereas on the same day I took several eggs of the Griffon Vulture, fresh enough to be easily blown, while in no case did I find the eggs hatched. My experience of the following year confirmed me in this opinion, as I invariably found the young of *Vultur monachus* a full fortnight, and in some cases more, in advance of *Gyps fulvus*.

Dr. Bree (B. Eur. i. p. 8) says of the Cinereous Vulture that "it builds among the most inaccessible rocks." This, however, I have not found to be the case; I have invariably seen the nest placed on a tree, and generally on one of no great size. In April 1865, as just mentioned, I observed several nests of this bird in the thickly wooded country lying to the right of the Pravidy Valley, within about three miles of the town of that name; and they were all, without exception, placed on trees at an average height of about twenty feet from the ground. Unfortunately I have nearly always been too late for the eggs of this bird, and have only been able to secure a single example. I am inclined to think that it does not usually lay more than one, as I never found but one young bird in a nest. It is also probable that birds of this species return to the same nest year after year, as I found the nests of 1865 tenanted when I visited them in 1866.

GYPS FULVUS (Linn.). Griffon Vulture.

Throughout the whole of Central Bulgaria, this is one of the commonest birds; but, from the nature of the country, it is particularly partial to the Pravidy Valley, which, being in general pretty well supplied with carrion, is peculiarly adapted to this species and others of kindred habits. The valley is about fifteen miles in length, and varies from a quarter of a mile to a mile and a half in breadth. It is surrounded on all sides by precipitous hills, some thickly wooded, others being barren and bare, rising to a height of from one to six or seven hundred feet above the level of the plain, and is watered by a small stream, which in the autumn is nearly dry, but at times overflows

nearly the entire valley, thus forming numberless stagnant pools. In some places it resembles nothing so much as a deep ravine cut in the rocks, which rise perpendicularly on both sides; and it is these spots that are so much frequented by the Griffon Vulture and a variety of other birds; and, the rocks being riddled with naturally formed caves, they breed here literally in flocks.

During my residence at Pravidy I kept a collection of live birds of prey amounting to some forty in all, and among them I had three specimens of the Griffon Vulture. I found them very noisy and pugnacious, especially about feeding-time; and they would fight among themselves, and sometimes with other birds, in a most determined way. They made use in these combats of their beaks and wings, but never of their claws after the manner of the *Falconidæ*.

NEOPHRON PERCNOPTERUS (Linn.). Egyptian Vulture.

In the Pravidy Valley, the neighbourhood of Shumla, and wherever the hills show a broken face of rock, there I found this Vulture pretty abundant; but in the open country and wooded district, although occasionally to be met with, it is comparatively scarce. It arrives here early in March, leaving again about the end of October. Nidification commences somewhat later than with *G. fulvus*, and not much before the beginning of April, as a rule, but varies slightly with the season. In confinement I found this a very dull and sheepish sort of a bird.

FALCO SACER, Gmelin. Saker.

This noble Falcon, although not so plentiful as some others of its tribe, is in this country by no means a very rare bird. From April to October it is pretty generally to be met with on the barren wastes which stretch from Hasiue to Kushetchen. Whether it remains here during the winter is a question about which I am not absolutely decided; but I am inclined to think it does. Some specimens I certainly have seen during the depth of winter; but they seem scarcer during the severe cold which freezes the mighty Danube.

In the spring of 1865 my friend Mr. Robert Barkley, when residing at Shitangick, in charge of the railway-works in that

district, obtained a pair of young Sakers from a nest situated on a tree about a quarter of a mile from the railway-works at Shitangick. He kept these birds in confinement for several months, and they appeared to thrive ; but, if I recollect rightly, they ultimately succumbed to the carelessness of native servants.

The following year (1866) I had the good fortune to be residing at Shitangick, and I carefully watched the habits of this species. Towards the middle of March I observed two pairs of these Falcons frequenting the neighbourhood ; and at the end of the month I found one of these pairs were repairing the old nest, from which Mr. R. Barkley, the preceding spring, had taken the young. In the first week of April I found the nest of the second pair, at a distance of about two miles from that of the first. The nest was placed on a solitary tree, in close proximity to which there was a little corn growing ; but the general character of the surrounding country is that of wild undulating moors, with a few shrubs at long intervals, and an occasional tree or two.

On approaching within about two hundred yards of the place, one of the birds flew from the tree in an anxious manner, as though leaving the nest, and I was much disappointed at not being able to get a shot at it. However, I ascended the tree ; and when within a few feet of the nest, off flew another bird, at which of course I was unable to shoot. I found the nest quite finished, but no eggs in it. It was about eighteen inches in external diameter neatly put together ; and, unlike most Falcons' nests, it was by no means flat, but, on the contrary, was much hollowed in the middle in the form of a bowl ; it was composed of large sticks at the base, the upper part being made of smaller and more pliable twigs, and lined inside with tender twigs, a little coarse grass, and a few pieces of wool interwoven together.

On the 12th of April I again paid a visit to this nest ; but this time I took a friend with me, being determined, if possible, to secure one of the birds. We approached very stealthily and quietly to within about one hundred and fifty yards of the tree, when, as before, one of the parent birds left the tree. Being, however, mindful of what happened on my former visit, I kept

myself in readiness for the other bird. On coming to the foot of the tree, we stationed ourselves one on either side of it, shouted and made a great noise, but all to no purpose; no second bird appeared, nor could I distinguish anything like a bird on the nest. I began to think that the birds had been too wise to trust again to their former device; however, to make quite sure of the fact before ascending the tree, my friend fired, when to our no little surprise out flew a bird like an arrow; and, as it came my way, I had the satisfaction of bringing it down. On ascending the tree I found that the nest contained two eggs, which, with the female bird I had shot, I brought away with me, being well satisfied with the result of my morning's walk.

The eggs are of a slightly elongated oval form, and differ from the generality of Falcon's eggs in being decidedly more pointed at the smaller end. The two eggs taken by me from the same nest, as before described, are similar in form, but they differ much in markings; of one the ground-colour is light red covered all over with small spots and blotches of bright red, the blotches being larger and darker at the larger end; the other egg has a ground-colour of dirty reddish-white, covered with small spots and rather large blotches of a dirty red, the blotches being fewer, larger, and more distinct than on the other egg*.

FALCO LANARIUS, Linn. Lanner.

Out here the Lanner appears to be even less common than the Saker; but whereas the Saker seems to affect the wild wastes of down and moorland, the Lanner is more equitably distributed, and is occasionally to be seen in all parts of the country. I have seen it near the lower lake of Devna, in the Pravidy Valley, and in the neighbourhood of Shitangick—three localities as dissimilar as possible. In April 1866 a pair bred among the rocks in the Pravidy valley; the nest contained four eggs, which my friend Mr. Bohenskil secured for me. They much resemble those of the Peregrine Falcon, but are larger and more pointed at the small end than any Peregrine's egg in my possession; the ground colour is light brown, and they are marked all over with very small spots of a light reddish colour; in some parts the spots are so close together that they entirely hide the ground.

* [Cf. Ibis, 1860, pp. 377, 378, pl. xii. fig. 1.—ED.]

There is little or no difference between the markings of the large and small end.

FALCO PEREGRINUS, Gmel. Peregrine Falcon.

Commoner than either of the two preceding species, but they evidently choose very secure and secluded spots for their nests. I have only once had the good fortune to take their eggs; in this instance the nest was placed in a large tree at no great distance from Kialdery, and it had all the appearance of being an old nest of *Aquila imperialis*. Placed in the fork of a tree, it had been so much knocked about by the wind and weather that it was no longer in a horizontal position, but sloped at an angle of about twenty degrees from the horizon. It was very large and almost flat; and the wonder was how the eggs kept in it at all. It was formed of large coarse sticks, lined with a few smaller ones, and contained four eggs, which, although taken so late as the 2nd of May, were but slightly incubated.

FALCO SUBBUTEO, Linn. Hobby.

This elegant little bird, excepting only the Kestrel, in Central Bulgaria is undoubtedly the commonest of all the hawks. It is to be met with in all parts of the country, but it appears to be partial to the barren moors to the eastward of Shumla. In the autumn they seem to be more plentiful than at any other time of the year. The Quail, to which they appear to be particularly partial, may perhaps attract them to this locality at this particular season of the year.

FALCO ÆSALON, Linn. Merlin.

In this part of the world the Merlin is extremely rare, though I hear from the natives that it is abundant on the Asiatic side of the Black Sea, where, they inform me, the Turkish sportsmen use it for taking the Quail. I have only once seen a specimen of this bird alive: it was sitting on a stone, earnestly watching some small birds, on a piece of cultivated ground; all at once it started off in pursuit of one of them, which at last took shelter in some bushes; during this chase I managed to get close to it, and when it again seated itself on another stone it was almost within shot of me; again it went off in chase of

another bird, when, to my great satisfaction, it passed close to me, and I shot it.

TINNUNCULUS ALAUDARIUS, G. R. Gray. Kestrel.

Throughout the whole country lying between the Black Sea and the Danube the Kestrel is abundant, and is in fact the commonest of all the birds of prey. It seems to have no partiality for any particular spot, it being equally abundant on the shores of the two lakes of Devna, the Pravidy valley, the moorlands about Shitangick, and the forest country to the east of Rodgrad.

ASTUR PALUMBARIUS (Linn.). Gos-Hawk.

Almost as rare a bird as the Kestrel is common; I have, however, noticed a few specimens. One was shot in the autumn of 1865 by my friend Mr. Gripper, near Kialdery. We had been out after Partridges; and on returning, close to the village, sitting on a native-made gate, was a fine Gos-Hawk, which my friend shot and preserved.

CIRCUS ÆRUGINOSUS (Linn.). Marsh Harrier.

About the marshes that surround the lakes of Devna, but more particularly the upper lake, this species is very abundant. I have also met with it in various other parts of the country; indeed I have a specimen that I shot at the southern extremity of the Pravidy valley, that is better marked than any other specimen that I have seen—the ash-colour on the wings being particularly clear and well defined.

CIRCUS CYANEUS (Linn.). Hen-Harrier.

On the moors to the eastward of Shumla, Hen-Harriers are extremely numerous during the autumn months; but at no other time of the year have I noticed them. At that season I have occasionally seen as many as thirty and more at a time hovering over and hunting the country; but they appeared to be mostly birds of the year.

CIRCUS CINERACEUS (Mont.). Ash-coloured Harrier.

The existence of this bird in Bulgaria is, I think, doubtful. On the marshes surrounding the upper Devna Lake, I have noticed a fine specimen of a Harrier that I took for this bird, but I was never able to procure a specimen; my friend, Mr.

McVean, who was engaged on the same railway-works as myself, declared that there was no doubt about the bird whatever*.

XXXIII.—*Synopsis of the Birds of Vancouver Island.*

By ROBERT BROWN, F.R.G.S.

I PROPOSE in the following paper to submit, in the form of a synoptical list, the present state of our knowledge of the Ornithology of Vancouver Island on the north-west coast of America, lying between latitude $48^{\circ} 16'$ and $50^{\circ} 58'$ N., and longitude $128^{\circ} 25'$ and $123^{\circ} 15'$ W. In general character the island is mountainous and densely covered with pine-forests, while many smaller islands lie off the coast, which is indented by numerous bays and inlets, the interior being intersected everywhere with rivers and lakes.

I have devoted myself to ornithology at various intervals during portions of nearly four years spent in the islands or the neighbouring territories (as Commander and Government Agent of the Vancouver-Island Exploring Expedition, and Botanist of the British-Columbia Expedition), paying in the course of that period every year a visit of longer or shorter duration to the colony. The summer of 1864 I spent wholly in the island, engaged in exploring the then unknown interior.

While drawing for the most part on original material, I have not neglected what little has been written upon the birds of the country †. Mr. P. L. Selater has given (P. Z. S. 1859, pp. 235–237) a list of thirty-five species, collected by Captain Prevost. This list contains five species of which I never heard as Vancouver-Island birds: four of them I know as denizens of the mainland; but the fifth (*Oreortyx pictus*) I cannot, without

* [The collections of bird-skins sent by Dr. Cullen of Kustindjie to Mr. Stevens have usually contained a considerable number of specimens of *Circus swainsoni*, and fewer of *C. cineraceus*. The former, therefore, one would think, is most likely the species to which the above remarks refer.—Ed.]

† 'Exploration of Vancouver Island,' 1864. 8vo (Colonial Blue Book); Proc. Roy. Geogr. Soc. 1865; Petermann's 'Geographische Mittheilungen,' &c. &c.

further evidence, look upon as having been obtained on the coast, to which alone in Vancouver Island Capt. Prevost's investigations extended. His ship was, however, at times lying off the shores of the mainland; and it is more than probable that these species were collected at various points, though vaguely described as being "from Vancouver Island." It is only out of respect to so high an authority as Mr. Selater, and to so distinguished an officer as Capt. Prevost, that I have retained these species in this list, marking them with a "¶". Dr. Charles Forbes, R.N., in the appendix to his pamphlet entitled a 'Prize Essay on Vancouver's Island as a Field for Emigration'*, has printed a short list of the birds; but this list is very imperfect, and almost inaccessible to students of ornithology. Mr. J. K. Lord, while Zoologist of the North-west Boundary Commission, made various visits of considerable duration to Vancouver Island, and in his work† has added not a little to our knowledge of the birds of the island; but as he has only professed to give a general sketch of the zoology of North-west America, he can scarcely be blamed for occasional looseness as to localities. I have, however, inserted on his authority fourteen species, marked with a dagger (†), which I was not aware were natives of the island, though common on the mainland. The above, meagre as it is, comprehends all that has been published in any way affecting our knowledge of the species inhabiting the country in question. The late Dr. Wood, R.N., contributed a few paragraphs on the Birds of Vancouver Island and British Columbia to Capt. Mayne's 'Four Years in British Columbia' (pp. 416-18); but I have not touched upon them, as the account will manifestly not admit of criticism.

During my various visits to and explorations of Vancouver Island I lost no opportunity of studying its ornithology; and though often unable to convey any specimens over the almost impenetrable wilds which it was my duty to traverse, I made full notes of the species, and resolved my doubts on return to civilization. I also examined every local collection of which I could

* Victoria, V. I.: 1862.

† The Naturalist in British Columbia and Vancouver Island. London: 1866.

hear; and particularly I received much assistance from my friend Mr. James Hepburn, a gentleman who has spent many years in collecting the birds of the North Pacific, and whose knowledge is only equalled by his liberality in imparting it to his less fortunate brother naturalist. His princely (for no other term will designate it) collection is now in San Francisco, and I trust that he will by-and-by favour us with an extended account of North-Pacific ornithology; but in the meantime this synopsis, which owes all that is most original in it to his notes, may stand as a contribution to zoogeography, which can alone proceed on a sure basis by the collection of local faunas.

It would, however, be out of place, in the present state of our knowledge of the avifauna of the island, to attempt anything like an analysis of the geographical distribution of the elements which compose it, for in a few years this would require to be done over again; and as this list is manifestly imperfect (though complete according to our present acquaintance), no good purpose could be served thereby. Many of the birds are common to the whole American continent, and some are even European; most of them are already known as more southern members of the Pacific-coast fauna, while several, as noted in the list, are now recorded for the first time from the west of the Rocky Mountains. The interior of the island is very bare of bird-life, the gloomy pine-forests permitting few or no plants (on the seeds of which many of the insessorial species feed) to grow under their shade. However, an occasional bird is seen by the shores of the beautiful lakes and rivers which we came across in our exploration; while Grouse might be heard drumming in nearly every portion of the country, and the tapping of the Woodpecker is often for days the only sound (save the cry of the Heron and the noise of the Geese and Ducks which resort for breeding-purposes to the solitary inland waters) to break the stillness of these lonely and sombre forests. In the winter most of these lakes are frozen over, and continue so until early in the summer. During this period the water-birds resort in countless numbers to the quiet inlets and bays on the coast, but particularly to the marshy lands at the mouths of many of the rivers, such as the Somass, the Sooke, Nempish, or the Cowichan. It is on the

coast, however, that any great addition to our avifauna may be expected. I have divided this synopsis into two portions :—1st, a list of birds known to exist in the Island ; and, 2ndly, a list of species known to inhabitants of the neighbouring mainland of Washington territory and British Columbia, which species being reasonably considered to be in all likelihood also members of the Vancouver-Island fauna, ought to be looked for. Most of the domestic fowls of England and the United States are, of late years, to be found in the farm-yards of the southern portion of the island. The Californian Quail (*Lophortyx californicus*) has been set free in the district near Metchosin, with a view to add to the game-birds of the island, but, so far as I can learn, it is not prospering very well. I may also mention, in connexion with this subject, that the English Rabbit (*Lepus cuniculus*) has also been introduced into the same district, and will most likely increase rapidly.

I have prefaced my list of the known birds of Vancouver Island by a table showing at a glance the tribal, generic, and specific distribution of the avifauna ; and this table saves me the necessity of introducing further systematic details. From this it will appear that the known avifauna of Vancouver Island comprehends 153 species, extending over six orders, thirty-eight primary tribes, and one hundred and eighteen genera. The statistics of the species, genera, and tribes in these orders may be stated as follows :—

Orders.	Tribes.	Genera.	Species.
1. Raptores	3	12	14
2. Scansores	1	4	6
3. Insessores	17	51	66
4. Rasores	3	5	5
5. Grallatores	7	16	18
6. Natatores	7	30	44
	38	118	153

The species are arranged according to Prof. Spencer F. Baird's well-known 'Birds of North America;' and a reference to that work saves all necessity of swelling the limits of this list (which is only intended as a guide to future collectors) by inserting descrip-

tions of the species, their synonymy, distribution, or habits. I have, however, occasionally added an explanatory note on some of these subjects, and in one case (that of *Leucosticte griseinucha*) an original description. The local name, or, where the bird is not sufficiently common to have obtained one, the general popular name is added, for the benefit of local collectors. The list of probable members of the fauna numbers sixty-two species; and I confidently expect to see the greater portion of this cancelled, as well as other species not in it added, within a few years. Though some of the species entered there are now removed by this list, yet I may still take the liberty of referring the student to a "List of Birds hitherto reported from the North-west Part of America, but of which no specimens have been procured by recent explorers," in the admirable 'Natural History of Washington Territory' by Drs. Cooper and Suckley * (pp. 288-289), to which, as well as the works of Mr. Lord, Townsend †, Nuttall §, and the papers and works cited in the Bibliographical Appendix to Prof. Baird's book, I have much pleasure in referring for more extended details.

I. *Birds inhabiting or frequenting Vancouver Island.*

- +†1. CATHARTES AURA (L.). Turkey-Buzzard.
- +2. FALCO NIGRICEPS, Cass. Western Duck-Hawk.
- +3. FALCO COLUMBARIUS, L. Pigeon-Hawk.
- +4. FALCO SPARVERIUS, L. Sparrow-Hawk.
- 5. ACCIPITER FUSCUS (Gm.). Sharp-shinned Hawk.
- 6. BUTEO MONTANUS, Nutt. Western Redtail.
- 7. CIRCUS HUDSONIUS, L. Harrier; Marsh-Hawk.
- 8. HALIAETUS LEUCOCEPHALUS (L.). White-headed Eagle.
- 9. PANDION CAROLINENSIS (Gm.). Fish-Hawk; American Osprey.

* New York: 1859.

† Narrative of a Journey over the Rocky Mountains, &c. Philadelphia: 1839.

§ 'Manual of the Ornithology of the United States and of Canada,' 2nd ed. Boston: 1840.

- 10. *BUBO VIRGINIANUS* (Gm.). Great Horned Owl.
- +11. *SCOPS ASIO* (L.). Screech or Mottled Owl.
- +12. *NYCTALE ACADICA* (Gm.). Sawwhet Owl.
- +13. *GLAUCIDIUM GNOMA*, Wagler. Pigmy Owl.
- 14. *NYCTEA NIVEA* (Daud.). Snowy Owl.
- 15. *PICUS HARRISI*, Aud. Harris's Woodpecker.
- 16. *PICUS GAIRDNERI*, Aud. Gairdner's Woodpecker.
- +17. *SPHYROPICUS RUBER* (Gm.). Red-breasted Woodpecker.
- +18. *SPHYROPICUS VARIUS* (L.). Yellow-bellied Woodpecker.
- +19. *COLAPTES MEXICANUS*, Swains. Red-shafted Flicker.
- +20. *HYLATOMUS PILEATUS* (L.). Logcock.
- 21. *SELASPHORUS RUFUS* (Gm.).

The Red-backed Humming-bird is very common as far north as Sitka in "Russian America" (Alaska), where it is said to be abundant. It appears in the vicinity of Victoria, Vancouver Island, from the end of March to the beginning of May, according to the state of the season. It builds its nest on the tips of low bushes, or the under branches of trees, and can be seen all through the summer flitting about from flower to flower (particularly the bright scarlet blossoms of *Ribes sagineum*, &c.), not in search of honey, but of the insects which harbour there. The Indian boys at Fort Rupert used to capture them with a sort of bird-lime made of the slime of a species of *Limax* found there. In popular opinion there are two species in the island, the bright hues of the male being so different from the homelier plumage of the female. Though several species frequent the region on the other side of the Cascade Mountains, yet, as far as I am aware, the species in question is the only one to the west of that range.

22. *CHORDILES POPETUE* (Vieill.). Night-Hawk ; Bull-Bat ; Goatsucker ; Pisk ; Mosquito-Hawk.

23. *CERYLE ALCYON* (L.). Belted Kingfisher.

+24. *TYRANNUS VERTICALIS*, Say. Arkansas Flycatcher.

plumbeus

see p. 244 Ed. for 1869

- + 25. *TYRANNUS VERTICALIS*, Baird*. King-bird ; Bee-Martin.
26. *CONTOPUS RICHARDSONI* (Swains.). Short-legged Peewee.
27. *CONTOPUS BOREALIS* (Swains.). Olive-sided Flycatcher.
28. *EMPIDONAX PUSILLUS* (Swains.). Little Peewee.
- + 29. *TURDUS USTULATUS*, Nutt. Western Thrush.
- + 30. *TURDUS MIGRATORIUS*, L. Robin.
31. *TURDUS NÆVIUS*, Gm. Painted Robin.
- + 32. *SIALIA MEXICANA*, Swains. Western Blue-bird.
- + 33. *REGULUS CALENDULA* (L.).
The Ruby-crowned Wren is only a summer visitant at Fort Rupert.
34. *REGULUS SATRAPA*, Licht. Golden-crested Wren.
35. *HYDROBATA MEXICANA* (Swains.). Water-Ouzel or Water-Crow ; Dipper.
36. *ANTHUS LUDOVICIANUS* (Gm.). American Titlark.
37. *GEOTHLYPIS MACGILLIVRAYI* (Aud.). Western Yellow-throat.
- + 38. *GEOTHLYPIS TRICHAS* (L.). Maryland Yellow-throat.
39. *HELMINTHOPHAGA CELATA* (Say). Orange-crowned Warbler.
40. *DENDRÆCA AUDUBONI* (Townsend). Audubon's Warbler.
41. *DENDRÆCA ÆSTIVA* (Gm.). Yellow Warbler.
42. *DENDRÆCA CORONATA* (L.). Yellow-rumped Warbler.
Both the species last named are common at Fort Rupert in June.
43. *PYRANGA LUDOVICIANA* (Wils.). Louisiana Tanager.
44. *HIRUNDO HORREORUM*, Barton. Barn-Swallow.
Seen at Fort Rupert in May 1866.
45. *HIRUNDO BICOLOR*, Vieill. White-bellied Swallow.

[* *Qu.* the same species as the preceding?—ED.]

46. *HIRUNDO THALASSINA*, Swains. Violet-green Swallow.
Builds in knot-holes in trees.

47. *COTYLE SERRIPENNIS* (Aud.). Rough-winged Swallow.
As far north as Fort Rupert in May.

48. *CHÆTURA VAUXI* (Towns.).

¶49. *NEPHOCÆTES NIGER* (Gm.).

The Northern Swift I place in this list wholly on the authority of the specimen said to have been got by Capt. Prevost. I had not known it hitherto in Vancouver Island, though it is common enough in Puget Sound.

50. *AMPELIS CEDRORUM* (Vieill.).

The Cedar-bird is common at Fort Rupert in early summer.

51. *VIREO GILVUS* (Vieill.). Warbling Flycatcher.

52. *VIREO SOLITARIUS* (Wils.). Blue-headed Flycatcher.

53. *TROGLODYTES PARKMANI*, Aud. Parkman's Wren.

— 54. *TROGLODYTES HYEMALIS*, Vieill. Winter-Wren.

— †55. *SALPINCTES OBSOLETUS* (Say). Rock-Wren.

Had not so good an authority as Mr. Lord recorded this as a Vancouver-Island bird, I should have doubted, with Prof. Baird, its being found on the coast, as it is an inland species.

— †56. *THRYOTHORUS BEWICKI* (Aud.). Bewick's Wren.

57. *SITTA ACULEATA*, Cass. Slender-bill Nuthatch.

— 58. *SITTA PYGMÆA*, Vigors. Californian Nuthatch.

59. *SITTA CANADENSIS*, Linn. Canada Nuthatch.

— ¶60. *CERTHIA AMERICANA*, Bonap. American Creeper.

61. *PARUS RUFESCENS*, Towns. Chestnut-backed Titmouse.

†62. *EREMOPHILA CORNUTA* (Wils.). Shore-Lark.

63. *CARPODACUS CALIFORNICUS*, Baird. Western Purple-Finch.

64. *CHRYSOMITRIS PINUS* (Wils.). Pine-Finch.

65. *CURVIROSTRA AMERICANA*, Wils. Red Crossbill.

66. *ÆGIOTHUS LINARIA* (L.). Lesser Redpoll.

67. *LEUCOSTICTE GRISEINUCHA*, Brandt, Bull. Acad. St. Pétersb. 1841, p. 36.

I am only acquainted with this rare bird from a single male specimen killed at Fort Rupert in June 1862 by Mr. P. N. Compton, the officer in charge of that establishment. This Finch has hitherto been known merely as an inhabitant of the Aleutian Islands and neighbourhood; and as Prof. Baird only quotes Bonaparte's description, I append the following notes taken from Mr. Compton's specimen:—

Throat rather dark brown, but not yet *black* as Bonaparte describes it. Forehead blackish. Nasal feathers white. Cheeks and back of neck grey. Interseapular region and breast chestnut-brown, the feathers narrowly bordered with ferruginous; sides and abdomen brown, margined with rose-colour. Wing-coverts and upper and under tail-coverts broadly margined with rose-colour. All the feathers of the wings, with the exception of the outer ones, slightly margined with white. Bill yellow, with blackish tip. Legs and feet black; middle toe longest; tibial feathers lightish brown. I am doubtful if it is different from *L. tephrocotis* (Sw.), which is also a British-Columbian bird.

Mr. Compton has also informed me that he had seen another Finch with a scarlet head and throat, with spots of yellow and blackish brown on the wings, but failed to obtain a specimen.

68. *PASSERCULUS SANDWICHIENSIS* (Gm.). Large Savannah-Sparrow.

69. *ZONOTRICHIA GAMBELI*, Nutt. Gambel's Sparrow.

70. *ZONOTRICHIA CORONATA* (Pall.). Golden-crowned Sparrow.

71. *JUNCO OREGONUS* (Townsend.). Oregon Snow-bird.

72. *SPIZELLA SOCIALIS* (Wils.). Chipping Sparrow.

73. *MELOSPIZA RUFINA* (Brandt)*. Western Song-Sparrow.

74. *PASSERELLA TOWNSENDI* (Aud.). Townsend's Fox-Sparrow.

* Mr. Selater inserts, with a note of interrogation, *Melospiza fallax*, Baird, as being among Capt. Prevost's birds; but I have little doubt that it was the above.

†75. *CYANOSPIZA AMÆNA* (Say). Lazuli-Finch.

76. *GUIRACA MELANOCEPHALA*, Swains. Black-Headed Grosbeak.

+ 77. *PINICOLA CANADENSIS* (Brehm). Canadian Grosbeak.

Hitherto not known on the Pacific coast. During the winter of 1866, whilst snow was lying on the ground, two pairs (males and females) were shot at Fort Rupert.

78. *STURNELLA NEGLECTA*, Aud. Western Meadow-Lark.

†79. *SCOLECOPHAGUS CYANOCEPHALUS* (Wagler). Brewer's Blackbird.

80. *AGELEUS PHENICEUS* (L.). Red-winged Blackbird.

¶81. *XANTHOCEPHALUS ICTEROCEPHALUS* (Bonap.). Yellow-Headed Blackbird.

82. *CORVUS CARNIVORUS*, Barton. American Raven.

83. *CORVUS CAURINUS*, Baird. North-western Fish-Crow.

84. *CYANURA STELLERI* (Gm.). Steller's Jay.

—85. *PERISOREUS CANADENSIS* (L.). Whiskey-Jack.

†86. *PICA HUDSONICA* (Sabine). Magpie.

I have not seen this bird myself in Vancouver Island; but I have often heard old settlers say that it has been seen near Victoria. It is common as far north as Sitka, and possibly further.

+ 87. *COLUMBA FASCIATA*, Say. Bar-tailed Pigeon.

I am assured, by the Hudson's-Bay officers who have stayed for several years at Fort Simpson (British Columbia) and have paid considerable attention to ornithology, that this bird is not found so far north, and probably does not go north of Millbank Sound.

— 88. *ZENAIURA CAROLINENSIS* (L.). Carolina or Common Dove.

— 89. *TETRAO OBSCURUS*, Say. Blue or Pine-Grouse.

This is certainly not the bird figured under this name in the 'Fauna Boreali-Americana' (vol. ii. pl. 59), which does not

range over the Rocky Mountains. I have examined specimens of both in Sir W. Jardine's Collection, with the benefit of his extensive knowledge, and can speak positively on the subject*.

90. *BONASIA SABINII* (Dougl.). Partridge; Ruffed Grouse; Pheasant.

¶91. *OREORTYX PICTUS* (Dougl.). Mountain-Quail.

I insert this here on the authority of Capt. Prevost's Collection; but its existence in Vancouver Island is exceedingly problematical, as it is not a bird of the coast-slopes of the Cascades at all, and certainly not of the district to which collectors have hitherto confined their researches.

92. *GRUS CANADENSIS* (L.). Sandhill-Crane.

93. *ARDEA HERODIAS*, L. Blue Heron or Crane.

†94. *BOTAURUS LENTIGINOSUS* (Mont.). Bittern; Stake-driver.

95. *APHRIZA VIRGATA* (Gm.). Surf-bird.

96. *HÆMATOPUS NIGER*, Pall.

Bachman's Oystercatcher is not a common bird in the southern portion of the island, but much more numerous in the north. About Queen Charlotte's Islands it is very plentiful. In March 1866, while rowing along the narrow sounds among these islands, we often saw it. It would sit on the rocks until we could almost touch it; then, uttering a low whistling cry, it would dart off to another skerry, repeating the same manœuvre over and over again.

97. *STREPSILAS MELANOCEPHALUS*, Vig. Black-headed Turnstone.

†98. *PHALAROPUS HYPERBOREUS* (L.). Lobefoot.

* [That there are two nearly-allied species of this form of Grouse (which has been generically separated by Mr. Elliot as *Dendragapus*) seems now to be generally admitted; but it is a question to which the names *Tetrao obscurus*, Say, and *T. richardsoni*, Douglas, respectively belong—Mr. G. R. Gray, in his recent 'List' of *Gallinæ*, taking a different view of the case from that of Mr. Elliot (*cf.* *Ibis*, 1866, p. 213).—ED.]

99. *GALLINAGO WILSONI* (Temm.). Wilson's Snipe; "English Snipe."

100. *TRINGA ALPINA*, L., var. *AMERICANA*, Cass. Red-backed Sandpiper; Ox-bird.

101. *TRINGA WILSONI*, Nutt. Wilson's Sandpiper.

102. *EREUNETES PETRIFACTUS*, Illig. Semipalmated Sandpiper.

103. *GAMBETTA MELANOLEUCA* (Gm.). Telltale Tattler; Stone-Snipe; Yellow-legged Tattler.

104. *HETEROSCELUS BREVIPES* (Vieill.). Wandering Tattler.

105. *LIMOSA FEDOA* (L.). Marbled Godwit.

106. *NUMENIUS HUDSONICUS*, Lath. Short-billed Curlew.

107. *NUMENIUS LONGIROSTRIS*, Wils. Long-billed Curlew.

108. *FULICA AMERICANA*, Gm. Coot; Mud-hen.

+¶109. *MACRORHAMPHUS GRISEUS* (Gm.). Grey Snipe.

110. *CYGNUS AMERICANUS*, Sharpless. Whistling Swan.

+¶111. *CYGNUS BUCCINATOR*, Rich. Trumpeter Swan.

112. *ANSER HYPERBOREUS*, Pall. Snow-Goose.

113. *ANSER GAMBELI*, Hartlaub. Laughing Goose; White-fronted Goose.

114. *BERNICLA CANADENSIS* (L.). Common Wild or Canada Goose.

115. *BERNICLA LEUCOPARIA* (Brandt).

116. *BERNICLA HUTCHINSI* (Rich.). Hutchins's Goose.

117. *BERNICLA NIGRICANS* (Lawrence). Black Brant.

I saw one of these Geese stalking about the Nuchultaw Indians' village in Discovery Passage, in March 1866, apparently quite tame. It is the "Nulla" of the Quakwolths, who had one also tamed in the village at Fort Rupert.

118. *ANAS BOSCHAS*, L. Mallard; Green-head.

119. *DAFILA ACUTA* (L.). Pintail; Sprig-tail.

- † 120. *NETTIUM CAROLINENSE* (Gm.). Green-winged Teal.
- 121. *CHAULELASMUS STREPERUS* (L.). Gadwall; Grey Duck.
- 122. *MARECA AMERICANA* (Gm.). Widgeon; Bald-pate.
- 123. *FULIX MARILA* (L.). Scaup-Duck; Big Black-head; Broad-bill.
- 124. *FULIX COLLARIS* (Donovan). Ring-necked Duck.
- 125. *ÆTHYIA VALISNERIA* (Wils.). Canvas-back.
- 126. *ÆTHYIA AMERICANA* (Eyton). Red-Head.
- 127. *BUCEPHALA AMERICANA* (Bonap.). Golden-eye; Whistle-wing.
- 128. *BUCEPHALA ALBEOLA* (L.). Butter-ball; Buffle-head.
- 129. *HISTRIONICUS TORQUATUS*, Bonap. Harlequin Duck.
- 130. *HARELDA GLACIALIS* (L.). Old-squaw; Long-tail; South-southerly.
- 131. *MELANETTA VELVETINA* (Cass.). White-winged Coot.
- 132. *PELIONETTA PERSPICILLATA* (L.). Surf-Duck; Sea-Coot.
- 133. *CEDEMIA AMERICANA*, Swains. Scoter.
- 134. *MERGUS AMERICANUS*, Cass. Sheldrake; Gosander.
- 135. *MERGUS SERRATOR*, L. Red-breasted Merganser.
- 136. *LOPHODYTES CUCULLATUS* (L.). Hooded Merganser.
- 137. *GRACULUS VIOLACEUS* (Gm.). Violet-green Cormorant.
- † 138. *GRACULUS DILOPHUS*, Sw. Double-crested Cormorant.
- 139. *PELECANUS FUSCUS*, L. Brown Pelican.
- 140. *DIOMEDEA BRACHYURA*, Temm. Short-tailed Albatros.
- 141. *LARUS GLAUCESCENS*, Lichtenstein. Glaucous-winged Gull.
- 142. *LARUS SUCKLEYI*, Lawrence. Suckley's Gull.
- 143. *BLASIPUS HEERMANNI* (Cass.). (*Larus belcheri*, Vig.) White-headed Gull.

144. *COLYMBUS TORQUATUS*, Brünn. Great Northern Diver ; Loom.

145. *COLYMBUS PACIFICUS*, Lawrence. American Black-throated Diver.

146. *COLYMBUS SEPTENTRIONALIS*, L. Red-throated Diver.

147. *PODICEPS OCCIDENTALIS*, Lawrence. Western Grebe.

— 148. *PODICEPS GRISEOGENA* (Boddaert). Red-necked Grebe.

149. *PODICEPS CORNUTUS* (Gm.). Horned Grebe.

150. *MORMON CIRRHATUS* (Pall.).

Tufted Puffins are found as far north as Fort Simpson, where the Indians trim their dancing-leggings with their beaks.

151. *CERATORHINA MONOCERATA* (Pall.).

The Horn-billed Guillemot is common at times at Fort Rupert, and is known as far north as Fort Simpson.

152. *URIA COLUMBA* (Cassin). Western Guillemot.

153. *BRACHYRHAMPHUS MARMORATUS* (Gm.). Marbled Auk.

II. *Birds which ought to be looked for within the Vancouver-Island limits, being in all probability either residents of, or visitants to the Islands.*

Accipiter cooperi, Bp.

A. mexicanus, Sw.

Archibuteo lagopus (Gm.).

A. ferrugineus (Licht.).

Otus wilsonianus, Less.

Brachyotus cassini, Brewer.

Syrnium cinereum (Gm.).

Picoides hirsutus (Vieill.).

Sayornis sayus (Bp.).

Empidonax acadicus (Gm.).

E. flaviventris, W. & S.F. Baird.

Turdus pallasi, Cab.

Dendraeca occidentalis (Towns.).

D. townsendi (Nutt.).

D. nigrescens (Towns.)

Dendraeca coronata (L.).

D. maculosa (Gm.).

Myiodioides pusillus (Wils.).

Cotyle riparia (L.).

Progne purpurea (L.).

Hirundo lunifrons, Say.

Collyrio borealis (Bp.).

Cistothorus palustris (Wils.).

Parus occidentalis, Baird.

P. montanus, Gambel.

Psaltroparus minimus (Towns.).

Carpodacus cassini, Baird.

Chrysomitris tristis (L.).

Passerculus savanna (Wils.).

P. alaudinus, Bp.

<i>Poecetes gramineus</i> (Gm.).	<i>Spatula clypeata</i> (L.).
<i>Zonotrichia albicollis</i> (Gm.).	<i>Aix sponsa</i> (L.).
<i>Spizella breweri</i> (Aud.).	<i>Fulix affinis</i> (Eyton).
<i>Melospiza lincolni</i> (Aud.).	<i>Bucephala islandica</i> (Gm.).
<i>Corvus americanus</i> , Aud.	<i>Erismatura rubida</i> (Wils.).
<i>Tetrao franklini</i> , Dougl.*	<i>Larus argentatus</i> , Brünn.
<i>Lagopus rupestris</i> (Gm.).*	<i>L. occidentalis</i> , Aud.
<i>Nyctiardea gardeni</i> (Gm.).	<i>L. californicus</i> , Lawr.
<i>Ægialitis vociferus</i> (L.).	<i>L. delawarensis</i> , Ord.
<i>Squatarola helvetica</i> (L.).	<i>Chroicocephalus philadelphia</i> (Ord).
<i>Strepsilas interpres</i> (L.).	<i>Rissa septentrionalis</i> , Lawr.
<i>Tringa maculata</i> , Vieill.	<i>Podiceps cristatus</i> (L.).
<i>Calidris arenaria</i> (L.).	<i>Podilymbus podiceps</i> (L.).
<i>Gambetta flavipes</i> (Gm.).	<i>Ceratorhina suckleyi</i> , Cass.
<i>Rhyacophilus solitarius</i> (Wils.).	<i>Brachyrhamphus temmincki</i> , Brandt.
<i>Querquedula discors</i> (L.).	
<i>Q. cyanoptera</i> (Vieill.).	

XXXIV.—*A Sketch of the Birds of Portugal.*

By the Rev. A. C. SMITH, M.A.

THE following observations on the Ornithology of Portugal are the result of a visit which I paid to that country in April and May of the present year. They are necessarily meagre and incomplete, and will amount at the most to a very imperfect sketch; perhaps I should say, a mere outline, as rapid travelling amidst novel scenes admits of little leisure for detailed examination, and every practical ornithologist is well aware that sufficient time and prolonged research alone enable one to arrive at any accuracy.

Having said thus much at the outset to disarm expectation, I may add, for the information of those who naturally look for a critical paper in this journal, that I should not have ventured to offer to the pages of 'The Ibis' any crude observations on the

* Both these may be found, I should think, about the snowy mountains we saw in the interior of the northern portion of the island.

birds of Portugal, inasmuch as I have a profound respect for the erudition of that sacred fowl, had it not been that, with the exception of a catalogue in Portuguese, published in Lisbon by Professor Barboza du Bocage in 1862* (of which I shall make considerable use in this paper), and a few short notes by Mr. G. F. Mathews, which appeared in the 'Naturalist' for 1864†: I am not aware that anything has been made known of the ornithology of that south-western corner of Europe.

It is absolutely necessary that I begin my story by making a few preliminary remarks on the principal geographical features and general appearance of the country, not only because such territorial conditions affect in the greatest degree the fauna of every district, but also because it is very generally supposed, though quite erroneously, that Portugal is naturally and to all practical intents and purposes a portion of Spain; and therefore it is concluded that the general aspect of the country, her geological features, her fauna and flora must be identical with those of her great neighbour. Now this is altogether a mistaken conclusion, arising doubtless from a recollection of the relative positions of Spain and Portugal on the map, where I allow that they do appear obviously united; but no sooner does the traveller cross the boundary which divides the kingdoms, than he becomes sensible how great is the divergence between the two countries, and that not only in their natural aspects, but even in the appearance, customs, language, and even religious opinions of their respective inhabitants. Thus, instead of the *Cordilleras* of Spain, those huge chains of mountains which divide and subdivide that country into broad belts, we have elevated ground, indeed, in Portugal, but, with the exception of the *Estrellas* in the centre, and the *Gerez* in the extreme north, the hills seldom rise so high as to take the rank of mountains. Neither are there in Portugal any *Sierras*, or abrupt, serrated, or hog-backed ranges, for which Spain is so famous, and which frequently rise to so great a height, and present vast ridges of

* "Instrucções praticas sobre o modo de colligir, preparar e remetter productos Zoologicos para o Museu de Lisboa. Por J. V. Barboza du Bocage. Lisboa: 1862." (*Qf. Ibis*, 1863, p. 227.)

† *Naturalist*, 1864, pp. 49-51, 69-71 and 88-90. (*Qf. Ibis*, 1865, p. 333.)

perpetual snow, unless again the *Estrellas* be excepted, which perhaps may be termed the backbone of Portugal. Again, while Spain is essentially the land of drought, and is sadly deficient in great rivers, Portugal stands conspicuous for its many and excellent streams: indeed, as the general inclination of the peninsula is from east to west, the streams which take their rise in Spain, and are fed from her snow-capped mountains (when they have increased in volume and become valuable rivers), with not many exceptions, flow through Portugal ere they enter the ocean, as for instance the Tagus, the Douro, the Minho, the Guadiana; and there is a vast number of other streams, of more or less size, which fertilize the districts they water, and make fruitful gardens of what would otherwise be barren wastes. So, too, while Spain is notoriously treeless, and you may travel day after day in that singularly naked land, and the dusky olive will be the only species of tree which meets your eye, Portugal abounds in forests, in several parts extending over many leagues, covering whole chains of hills, and, indeed, occupying a considerable area of the kingdom, forests of fir more particularly, though the oak, the chestnut, and the olive are abundant, and the cork flourishes to an extent I have never seen elsewhere. But, above all, in lieu of the vast elevated plateaux of Central Spain, so burnt up, arid, tawny-coloured, monotonous, and wearisome to the eye, Portugal offers wide-spreading undulating plains, indeed; but they are clothed with aromatic and other shrubs—the lavender, the rosemary, the myrtle, the heathers, and brilliant with the most gorgeous and beautiful wild flowers that botanists could desire, amongst which the *Cisti*, of various hues, and the *Hibiscus*, are preeminent. In truth, to a naturalist, the sight of a Portuguese heath would alone repay the trouble of a journey from England; there is something so exquisitely wild and refreshing in those immense undulating plains, where there are neither roads nor houses, neither trees nor human beings, no sign of cultivation, no trace of man: and even where the single-line railway has invaded the solitudes, and the one daily train wafts the traveller through the most populous (!) district, he may still indulge in his reverie of isolation from the “busy haunts of men,” as he gazes from the carriage-windows, and for

twenty consecutive miles will see the same many-coloured heath extending on all sides as far as the horizon, and not a vestige of man or his works. Still more, as, mounted on horseback, for hour after hour he follows the ill-defined track, or loses himself on those vast plains of uniform aspect, where no landmarks point out the direction he is following, he will learn to appreciate the extent of uncultivated land around him, where the sandy soil forbids the husbandman to labour, and declines to yield any crop to recompense his toil. But this compulsory abandonment to Nature of such large districts, however injurious to the property of the people, is highly gratifying to the naturalist. To the ornithologist who has leisure to linger in its recesses, and explore it carefully, a Portuguese heath will be found to harbour many an interesting species, though the cursory traveller, hurrying through it from point to point as rapidly as he can, will declare that, with the exception of an occasional large Hawk or Eagle soaring high above his head, not a bird is to be seen. To the botanist, as I have already remarked, it is a very garden of treasures, an elysium such as I can scarcely believe to be surpassed. To the entomologist it is a glorious field, abounding in butterflies and bright-coloured insects of a thousand forms; while to his ear the perpetual loud chirp of the cricket would be music, however distasteful and even annoying it is to others—though perhaps I am wrong in this last assertion, inasmuch as I frequently witnessed in the market of Lisbon a thriving trade in these same black-and-yellow crickets all in full song, a tiny cage of wire with its tiny occupant fetching the sum of twenty reis, or one penny sterling.

It may, then, readily be supposed that a country which presents such diversity of scenery, intersected by rivers whose banks are clothed with the most luxuriant vegetation, abounding in wide-extending forests, as well as vast uncultivated heaths, or sandy plains covered with brush, with an open coast extending from north to south washed by the waves of the wide Atlantic, furnished here with rugged rocks, and there with cultivated fields, and all lying under a climate which, for unclouded brilliancy of sun, and almost tropical heats, can scarcely be matched in any other district of Europe, must possess an

Avifauna which, if properly investigated, would yield a rich return to repay the exertions of the inquirer.

Moreover it is not alone in rare species that the ornithologist would expect to reap a valuable harvest, but in the differences and shades of colour, and in the variation of size which even the commoner birds offer in different localities, and more especially under different climates, that he would look for interesting results in this extreme south-western corner of Europe; and to this point my particular attention was directed before I set out on my journey.

Bearing this in mind, and resolved not to overlook the commonest species, I took every opportunity during my few weeks' tour in Portugal to examine all the birds which came in my way. To this end I wandered through plains and forests, by banks of rivers, and amidst the rocks and mountains, armed with double-barrelled gun and double field-glass—the latter, I take leave to add, quite as serviceable to the student in ornithology as the former. I also frequented the markets in Lisbon and other towns every day at early morning, and overhauled all the feathered *bouquets* composed of the smaller birds of all ranks and orders, which seem so attractive to continental epicures generally. Moreover I visited frequently the excellent Museum at Lisbon, and the indifferent one at Coimbra, which, so far as I can ascertain, comprehend all the natural-history collections in the country; and there I carefully examined, verified, and catalogued every specimen asserted to have been captured in Portugal. Lastly, I was fortunate in meeting with many intelligent men, who were not only willing to impart valuable information, but were able to do so in a language which I could understand: amongst these I must especially mention Dr. Suche and Professor Barboza du Bocage,—the former a fellow-labourer of Vigors, an experienced collector and preserver of some of the larger mammals and reptiles in South America; the latter the scientific and indefatigable director of the Museum at Lisbon, with whom I had many pleasant interviews, and who pointed out to me the more remarkable objects in the national collection, which (thanks to his exertions) is already assuming considerable importance, and must in the course of a few years, if the present

admirable system is continued, become extremely rich, not only in home specimens, but in the productions of the Portuguese foreign possessions and of the Brazils.

I should add that, since my return to England, I have submitted the small collection of Portuguese birds which I had time to preserve to Mr. Tristram; and as I have his permission to quote his remarks upon them, I shall freely do so, inasmuch as I am quite sure that the brief comments of such a master in ornithology will be of more real value than all my observations.

I now proceed to enumerate the several species I have seen in Portugal, distinguishing the degrees in which I have identified them by the following marks: (1) those I have met with alive and wild, in my rambles through the country, and those which I have met with in the markets in the flesh, about which there can be no reasonable doubt that they are Portuguese specimens, are marked *; and (2) those which I have verified in the Museum at Lisbon, whose respective pedestals bear the name of the locality whence they were procured, and for whose authenticity and claims as genuine Portuguese birds I have the ample assurance of M. du Bocage, are marked †. There are, of course, many other species not included in this list, though undoubtedly belonging to the country, but which I did not happen to meet with, and of which the museums did not possess a Portuguese specimen. Many such are included in the catalogue of Professor du Bocage mentioned above; but as my remarks do not profess to extend beyond what I myself saw, they have manifestly no place in this list. Incidentally, however, I have called attention to the more prominent amongst them. I append the Portuguese name wherever I have been able to ascertain it; and it will be at once apparent how little knowledge the natives possess of ornithology, from the indiscriminate use of the same name applied to several species, which in many instances vary widely in size, form, and colour.

1. *VULTUR FULVUS, Gmel. Griffon-Vulture. "*Griffo*."

Said to be common in the southern districts, and seen by me on several occasions in the plains of Alemtejo.

2. †VULTUR CINEREUS, Gmel. Cinereous Vulture. "*Pica-osso*."

Sufficiently well known to enjoy a separate specific name in Portuguese, a distinction only accorded to those birds habitually met with. The title, however, which it has received seems by some mischance to be usurped from another species, and to belong of right to *Gypaetus barbatus*, at all events in the neighbouring country of Spain.

3. *NEOPHRON PERCNOPTERUS (Linn.). Egyptian Vulture.

I failed to discover the Portuguese name of this bird, though I fell in with it on many occasions, and should call it common in suitable districts. There is but one specimen in the Lisbon Museum, an adult bird in miserable condition.

These three species of Vulture seem to be scattered in small numbers over the southern portions of Europe, as might be expected from the immense flocks one sees of them in Egypt and North Africa generally. I could hear nothing on inquiry of the Læmmergeier, *Gypaetus barbatus*, though, as it is still found in the Pyrenees, and Don Machado ‡ says that it inhabits the Sierra Morena in Spain, while Lord Lilford, in his admirable papers on the Ornithology of Spain§ speaks of it as almost common in favourable localities in that country, I should conceive it must be occasionally seen in the wilder parts of northern Portugal, and in the savage regions of the Gerez Mountains, where the Wolf and the Wild Boar abound, and the Ibex is still occasionally found.

4. †AQUILA CHRYSÆTUS (Linn.). Golden Eagle. "*Aguia real*."

Said to be extremely common in all the mountainous districts.

‡ "Catalogo de las Aves, observadas en algunas provincias de Andalucía, por D. Antonio Machado." Sevilla: 1854.

§ Ibis, 1865, pp. 166-177; 1866, pp. 173-187, 377-392. I cannot forbear to express the intense enjoyment with which I many times re-read these most charming papers, which are enough indeed to make the mouth of every ornithologist water, and send him off to Spain in hopes of similar success. I sincerely trust Lord Lilford will shortly carry out his proposal indicated at the close of his last paper, and that we shall have a complete list of the birds of Spain from the same inimitable pen.

5. †AQUILA HELIACA, Sav. Imperial Eagle. "*Aguia imperial*."

I entertain considerable doubts whether the only specimen of this bird in the Museum of Lisbon is a genuine Imperial Eagle, inasmuch as there is not a single trace of white on the scapulary feathers; and though Professor du Bocage, whose attention I called to the fact, accounted for it by declaring the bird in question to be immature, I cannot find that this distinctive characteristic of the species is ever wholly absent, though doubtless it is more conspicuous in adult birds*. There can, however, be no question that the bird is as well known in Portugal as it is in Spain; indeed it is said to be common in the province of Alemtejo.

6. †AQUILA BONELLII (Temm.). Bonelli's Eagle.

In addition to those in the Lisbon Museum, there are specimens of this species in the museum at Coimbra, where it is said to be especially abundant.

7. †AQUILA PENNATA (Gmel.). Booted Eagle.

This species is said to be common generally throughout Portugal; and that it is so seems probable from its abundance (as Lord Lilford points out) in Spain.

The three last-mentioned species appear to be thoroughly at home throughout the peninsula, whereas it seems doubtful whether the better-known *A. nævia* and *Haliaetus albicilla*, though included in Prof. du Bocage's list as probable visitors, have ever been seen within the limits of Portugal. *Circæus gallicus* (Gmel.), the Short-toed Eagle, is confidently asserted to be occasionally met with; but it has not as yet been procured for the Lisbon Museum. I think myself bound to add that Prof. du Bocage entertains considerable doubts as to the reported abundance in Portugal of *A. heliaca*, which he assures me he has never seen alive, or, indeed, in the flesh.

8. †PANDION HALIÆTUS (Linn.). Osprey. "*Aguia pescueira*."

Common in localities suited to its habits.

* [It has usually been supposed that the contrary was the case.—ED.]

9. †FALCO PEREGRINUS, Gmel. Peregrine Falcon. "*Falcão*."

It is strange that this cosmopolite should be described as of extremely rare occurrence in Portugal; but I was assured that it was very seldom met with in that country.

10. †FALCO TINNUNCULUS, Linn. Kestrel. "*Francelho*," "*Peneireiro*."

Abundant everywhere, as the fact of its possessing two local names would imply.

Falco subbuteo and *Astur palumbarius* are also pronounced to be tolerably common; but I did not meet with either of them, whether alive or in the museums. The former is known in Portugal as "*Falcão tagarote*;" the latter as "*Açor*."

11. *ACCIPITER NISUS (Linn.). Sparrow-Hawk. "*Gavião*." Common throughout the country.

Of *Accipiter gabar* (Daud.), the Little Red-billed Hawk, for which I made special inquiry, I could hear nothing; indeed Prof. du Bocage, to whom the species was well known as an inhabitant of Africa, assured me that it had never been seen in Portugal†.

12. *MILVUS ICTINUS, Sav. Kite. "*Milhafre*," "*Milhano*."

The double local name again marks pretty clearly the abundance of the bird which is thus honoured; and I met with this graceful species in Alemtejo and Estremadura.

I did not see my old Egyptian friends *Milvus migrans* (Bodd.) and *M. ægyptius* (Gmel.), though both are said to occur occasionally in Portugal; they do not, however, appear in the museums.

13. *ELANUS CÆRULEUS (Desfont.). Black-winged Kite.

Prof. du Bocage pointed out to me, as a more recent addition

† [This statement is of no small value, since M. J. G. Fatio-Beaumont, who is considered to have first recorded the occurrence of this species, under the very ambiguous name "*Astur micronisus*, Bp.", in Portugal (Naumannia, 1856, p. 267), states that a pair killed at their nest are, with their eggs, in the late King's collection. Had the assertion been correct, Prof. du Bocage must have been aware of the fact.—ED.]

to the Museum since the publication of his Catalogue, a fine specimen of this beautiful little bird, which he said was the only one known to have occurred in Portugal, and he considered to be a most valuable acquisition to the national collection.

14. **BUTEO VULGARIS*, Bechst. Common Buzzard. "*Tartaranhão*."

Once only did I see this bird; but it is reported to be extremely common.

15. †*CIRCUS ÆRUGINOSUS* (Linn.). Marsh-Harrier.

This is the only representative of the genus to be found in the Lisbon Museum; neither did I meet with any of them, though all our three British species are said to be occasionally found in Portugal. Of *C. swainsoni*, A. Smith, I could hear nothing.

16. †*BUBO MAXIMUS*, Flem. Eagle-Owl. "*Bufo*," "*Corujão*."

Said to be common in the mountains.

17. †*SCOPS GIU* (Scop.). Scops Owl. "*Mochó pequeno*."

Though by no means rare, does not appear to be so plentiful as I should have expected.

18. †*ASIO OTUS* (Linn.). Long-eared Owl. "*Mochó*."

Common in all wooded districts. How this species, of all others, came to receive the designation of *Mochó* is wholly unintelligible to me, the meaning of that word being "cropped," "dishorned,"—though possibly it may allude to its power of depressing its horns at will. *Asio brachyotus* (Linn.) is also well known, and even abundant in some parts, but I did not chance to see a specimen alive or dead.

19. †*STRIX FLAMMEA*, Linn. White Owl. "*Coruja das torres*."

By far the most abundant of all the Owls.

20. †*SYRNIUM ALUCO* (Linn.). "Tawny Owl." "*Corruja do mato*."

Better known in the wild districts of Alentejo than elsewhere, but nowhere common.

21. †*ATHENE NOCTUA* (Retz.). Little Owl. "*Mocho*."

Prof. du Bocage in his Catalogue appends the following observation to this bird:—"E frequente entre nós a variedade *meridionalis* de Schlegel."

22. †*LANIUS MERIDIONALIS*, Temm. Southern Grey Shrike. "*Picanso*."

This is the common greater Shrike of Portugal, though *L. excubitor*, also called *Picanso*, is known to occur there.

23. **LANIUS AURICULATUS*, P. L. S. Müller. Woodchat-Shrike. "*Picanso*."

Extremely common, though not distinguished from its larger congeners by any local name peculiar to itself. Of some examples which I sent to Mr. Tristram for examination, that gentleman writes:—"They are dark in colour; darker than Algerian, but not darker than Palestine specimens."

24. **MUSCICAPA GRISOLA*, Linn. Spotted Flycatcher. "*Taralhão*," "*Papa-moscas*."

Common everywhere.

25. †*MUSCICAPA ATRICAPILLA*, Linn. Pied Flycatcher. "*Papa-moscas*."

Tolerably common in the large and central province of Beira.

M. albicollis is also said to be common in the northern provinces of Minho and Tras os Montes, more especially in the wilder parts of the latter.

26. †*TURDUS SAXATILIS*, Gmel. Rock-Thrush.

27. †*TURDUS CYANEUS*, Linn. Blue Thrush. "*Solitario*."

28. †*TURDUS ILIACUS*, Linn. Redwing. "*Tordeira*," "*Tordoveia*."

29. **TURDUS MUSICUS*, Linn. Song-Thrush. "*Tordo*."

30. **TURDUS VISCIVORUS*, Linn. Missel-Thrush. "*Tordeira*," "*Tordoveia*."

31. †*TURDUS PILARIS*, Linn. Fieldfare. "*Tordo zornal*."

32. †*TURDUS MERULA*, Linn. Blackbird. "*Melro preto*."

The seven species enumerated above are all common in their respective haunts; and most of them appear in the poultry-

market suspended by the neck in bunches, and in company with Finches, Larks, and Buntings.

33. †TURDUS TORQUATUS, Linn. Ring-Ouzel. "*Melro de peito branco.*"

Said to be very rarely seen in Portugal.

Cinclus aquaticus, though rare, is unhesitatingly asserted to be found occasionally in the northern and eastern districts.

34. †ORIOLOUS GALBULA, Linn. Golden Oriole. "*Papafigos.*"

Very common in summer, though (strange to say) it had not arrived when I left the country in the middle of May; and yet in the more northern and much colder district of the Riviera, in North Italy, it had arrived at that date when I was wintering there some years back.

35. †ACCENTOR MODULARIS (Linn.). Hedge-Sparrow.

By no means common, and, so far as I could discover, does not enjoy the privilege of a Portuguese name. *A. alpinus* (Gmel.) has been met with but rarely.

36. *ERYTHACUS RUBECULA (Linn.). Redbreast. "*Pisco de peito ruivo.*"

Common here as in most parts of Europe.

37. †RUTICILLA CYANECULA (Meyer & Wolf). Blue-throated Warbler. "*Pisco de peito azul.*"

This is pronounced by Prof. du Bocage to be a rare bird in Portugal; but perhaps it would be better described as sparingly distributed over the country, for I heard of it in various quarters. The only two specimens in the Museum at Lisbon have a white spot in the centre of the blue throat, without the faintest tinge of red, which is characteristic of the true *R. suecica* (Linn.).

38. *RUTICILLA TITHYS (Scop.). Black Redstart. "*Rabiruiva.*"

I did not meet with our Common Redstart, *R. phænicea* (Linn.), alive or dead; but *R. tithys* I saw continually; indeed, in the very heart of the crowded city of Lisbon I often watched it on the house-roofs below my windows in the loftily situated Hotel Braganza.

39. *SAXICOLA RUBICOLA (Linn.). Stonechat. "*Cartaxo*."

As you traverse the country by railroad, from south to north, *i. e.* from Lisbon to Oporto, or from west to east, *i. e.* from Lisbon to Badajoz or Evora, you would undoubtedly say that there is but one bird really abundant in Portugal, and that is *S. rubicola*; for you shall seldom look from the carriage-windows but you will see some of that species perched on the telegraph-wires; and indeed it is extremely abundant throughout the country.

40. *SAXICOLA RUBETRA (Linn.). Whinchat. "*Cartaxo*."41. *SAXICOLA ŒNANTHE (Linn.). Wheatear. "*Caiada*."42. †SAXICOLA AURITA (Temml.). Black-eared Wheatear. "*Caiada*."43. *SAXICOLA STAPAZINA (Linn.). Russet Wheatear. "*Caiada*."

These four species are all common, though by no means so abundant as *S. rubicola*. With regard to a specimen of *S. stapazina* which I shot and brought home, Mr. Tristram remarks:—"It is in an interesting stage of plumage, not having yet assumed the bright russet head of the breeding-plumage, but being in the winter state, in which I never saw a European specimen; but I have them in that stage from Africa."

44. *PHILOMELA LUSCINIA (Linn.). Nightingale. "*Rouxinol*."

Though I cannot with truth assert, as some have done, that I have been kept awake all night at Cintra by the chorus of Nightingales which throng the lovely gardens and coppices of that much-lauded retreat of the Lisbonites in hot weather, yet I have listened to those birds in greater numbers there than I have ever known elsewhere, more especially in the beautiful gardens and woods of Montserrat, where I wandered with my gun for several consecutive days, and where the intelligent Scotch gardener, Mr. Burt, a true ornithologist at heart, and a collector and preserver on a small scale, gave me every facility for pursuing my investigations.

45. †SYLVIA ATRICAPILLA (Linn.). Blackcap. "*Tutinegra real*."

46. †SYLVIA CINEREA, Lath. Common Whitethroat.

47. †SYLVIA CURRUCA, Lath. Lesser Whitethroat.

48. †SYLVIA HORTENSIS (Gmel.). Garden-Warbler.

49. †SYLVIA MELANOCEPHALA (Gmel.). Sardinian Warbler.
 "*Tutinegra dos vallados*."

These five are all said to be common, and abundant in summer. I also heard of *S. conspicillata*, Marm., Spectacled Warbler; *S. subalpina*, Bonelli, Subalpine Warbler; and *S. orphea*, Temm., Orpheus Warbler, as undoubted, though only occasional, visitors. Here, too, I must enumerate a small band of Warblers which, though undoubtedly more or less common in summer, as I was assured they are, find no place as yet in the museums, and therefore cannot be included in my list. These are:—*S. trochilus* (Linn.); *S. sylvicola*, Latham; *S. bonellii*, Vieill.; and *S. hypoleis* (Linn.). All these four species are indiscriminately known in Portugal as "*Folosa*;" and the last is called also "*Fuinho*."

50. †MELIZOPHILUS UNDATUS (Bodd.). Dartford Warbler.

There is a specimen of this bird in the Lisbon Museum, marked, as on the Continent generally, *Sylvia provincialis*; but whether it is common in the country or not I could not discover.

51. †CISTICOLA SCHÆNICOLA (Bp.). Fan-tailed Warbler.

This pretty little Warbler, which I had known well in Egypt and Nubia, is reported to be common in Portugal; indeed Temminck first described it from skins brought from that country by MM. Link and Hoffmannsegg*; but I never fell in with it, though I kept a sharp look-out in the most likely spots, being particularly anxious to renew my acquaintance with this most diminutive species, and to hail my African friend on the shores of Europe.

Aedon galactodes (Temm.), is also said to be a frequent visitor in this country.

* [Dr. Bree (B. Eur. ii. p. 89) says that Temminck described it in the first edition of his 'Manuel;' but we are unable to find any mention of it in that volume, and no description appears to have been published till the second edition in 1820.—ED.]

52. †REGULUS IGNICAPILLUS, Brehm. Fire-crested Wren. "*Estrellinha*."

While our common Golden-crested Wren, *R. cristatus* (Linn.), known also in Portugal as "*Estrellinha*," is exceedingly rare in that country, and the museum cannot boast a specimen, *R. ignicapillus* is pronounced to be abundant.

53. †PARUS CAUDATUS, Linn. Long-tailed Titmouse.

54. *PARUS MAJOR, Linn. Great Titmouse.

55. *PARUS CÆRULEUS, Linn. Blue Titmouse. "*Chapim*."

These three species are common.

56. †PARUS CRISTATUS, Linn. Crested Titmouse.

Very rarely seen in Portugal, though undoubtedly it does occur sometimes; but one would hardly have expected to find at all, at the extreme south of Europe, this hardy little denizen of Scandinavia and Russia.

57. †PARUS ATER, Linn. Coal-Titmouse.

Though scarcely a rare bird, this species does not seem to frequent Portugal as it does some other southern countries of Europe; perhaps, however, there is a limit to its endurance of heat.

58. *MOTACILLA ALBA, Linn. White Wagtail. "*Alvelôa*."

59. *MOTACILLA YARRELLI, Gould. Pied Wagtail. "*Alvelôa*."

60. *MOTACILLA BOARULA, Lath. Grey Wagtail. "*Alvelôa amarella*."

61. †MOTACILLA FLAVA (Linn.). Grey-headed Yellow Wagtail. "*Alvelôa amarella*."

These four species are all reported to be common; while our *M. rayi*, though recognized as Portuguese, is considered extremely rare. There is a specimen in the Museum at Coimbra.

62. *ANTHUS PRATENSIS (Linn.). Meadow-Pipit. "*Petinha*."

63. *ANTHUS CAMPESTRIS, Bechst. Tawny Pipit. "*Petinha*."

These are the common Pipits of Portugal. Of the latter species, a specimen which I shot and brought home fairly puzzled Mr. Tristram for a time, no easy matter in any case; for it showed so yellow a tint on the lower surface as to resemble none in that gentleman's collection from Spain, Algeria, Greece, and Palestine. Subsequently, however, Mr. Tristram wrote me word that he had "come to the conclusion that the bird was in young plumage, a state in which we seldom find it in Europe," and that in this view he was "supported by the fact that its congeners have a deep yellow tint when young, which is absent in the old birds." More rarely are seen in Portugal *A. spinolletta* (Linn.), the Water-Pipit, and *A. trivialis* (Linn.), the Tree-Pipit.

64. **ALAUDA ARVENSIS*, Linn. Sky-Lark. "*Calhandra*," "*Laveria*."

Very common. In reference to a specimen which I sent Mr. Tristram for examination, he writes from Greatham:—"It is remarkably dark on the back: of a great series from almost every country of Europe, West Asia, and North Africa, I only find one exactly corresponding in the absence of a chestnut hue in the lighter portion of the feathers of the back; and that was shot here."

65. **ALAUDA ARBOREA*, Linn. Wood-Lark.

Local and not common. Mr. Tristram writes of my specimen that it "is darker than continental specimens, and dark for an English bird."

66. †*ALAUDA BRACHYDACTYLA*, Leisl. Short-toed Lark. "*Carreirola*."

Said to be common throughout the country.

67. **ALAUDA CALANDRA*, Linn. Calandra Lark. "*Cochicho*."

Common everywhere throughout the open plains and fields, and the most favourite cage-bird amongst the inhabitants of villages and towns; one may count them by dozens in a single street in their cages outside the windows and doors. Mr. Tristram remarks of two which I forwarded to him:—"The Calandra Larks are dark; one is of the ordinary size, the other

very small—I presume, a female; I have, however, one as small; and this bird varies in size to a remarkable degree.”

68. **GALERITA CRISTATA* (Linn.). Crested Lark. “*Cotovia*.”

Very common everywhere. Of this species Mr. Tristram says:—“Your *G. cristata*, though not darker than Algerian lowland- and marsh-specimens, is certainly darker than those from France and Palestine.”

69. **EMBERIZA MILIARIA*, Linn. Common Bunting. “*Tri-gueirão*.”

Exceedingly common, and figures in bunches in the market-stalls at Lisbon more than any other species. Mr. Tristram writes of it:—“It is rather darker than continental specimens, more nearly approaching the English.”

70. **EMBERIZA CIRCUS*, Linn. Cirl Bunting. “*Cia*,” “*Cicia*.”

Very common. Mr. Tristram’s verdict, upon an examination of my specimen, is, that “the yellow is extraordinarily deep.”

71. †*EMBERIZA CIA*, Linn. Meadow-Bunting. “*Tri-gueiro*.”

Said to be very common in the northern provinces of Portugal; but I never met with it in those parts.

72. †*EMBERIZA SCHÆNICLUS*, Linn. Reed-Bunting.

This is a rare bird in Portugal, and very seldom seen.

Still stranger does it appear that *E. citrinella*, Linn., our common Yellow Hammer, and *E. hortulana*, Linn., the Ortolan, so abundant in southern Europe, though *conjectured* to appear in Portugal occasionally, and therefore added to the Portuguese list, are not positively known to have occurred there, and have never been identified in the country.

73. **FRINGILLA CŒLEBS*, Linn. Chaffinch. “*Tentilhão*.”

Very common.

74. †*FRINGILLA MONTIFRINGILLA*, Linn. Brambling. “*Tentilhão montez*.”

This truly northern species is seldom found so far south, but has been occasionally met with in Portugal.

75. *PASSER DOMESTICUS (Linn.). House-Sparrow. "*Pardal.*"

The common Sparrow of Portugal is identical with our own ; but Mr. Tristram remarks of the specimen I sent :—" Your *P. domesticus*, by the intrusion of a few chestnut feathers on the crown of the head among the ash-coloured ones, seems to be approximating to var. *cisalpinus*, the head of which is wholly chestnut." Strange to say, *P. hispaniolensis* (Temm.), the Spanish Sparrow, though conjectured to visit Portugal, has never yet been identified in that country.

76. †PASSER PETRONIA (Linn.). Rock-Sparrow. "*Pardal francez.*"

Very rarely seen, and the Museum of Lisbon has but one specimen only of a female.

77. *COCCOTHTRAUSTES CHLORIS (Linn.). Greenfinch. "*Verdilhão.*"

78. †COCCOTHTRAUSTES VULGARIS (Steph.). Hawfinch.

Both species are common, the former abundant.

79. *CARDUELIS ELEGANS (Steph.). Goldfinch. "*Pinta-silgo.*"

I never met with Goldfinches in such abundance as in Portugal: large flocks, small parties and single birds abounded throughout the country ; and no species is more common in the markets, where bunches of these pretty little songsters are strung up by the necks and sold for food.

80. *CARDUELIS SPINUS (Linn.). Siskin. "*Lugre.*"

Common, but not abundant as the last.

81. *SERINUS HORTULORUM, Koch. Serin. "*Chamariz.*"

Very common in flocks on the plains and dry banks. Of some specimens which I shot, Mr. Tristram remarks :—" The yellow is remarkably deep."

82. *LINOTA CANNABINA (Linn.). Common Linnet. "*Pintarroxo.*"

Very common. Of this species Mr. Tristram writes :—" Your *L. cannabina* is not so bright as continental specimens, but more resembles the English."

83. †PYRRHULA EUROPEA, Leach. Bullfinch. "*Dom Fafe.*"

Though seldom seen in the southern provinces, this species is common in the north.

84. †LOXIA CURVIROSTRA, Linn. Crossbill. "*Trinca-nozes,*" "*Cruza-bico.*"

Common. Mr. Burt frequently saw it in the pine-woods near the sea-coast beyond Cintra.

85. *STURNUS VULGARIS, Linn. Common Starling. "*Estorninho.*"

Very common.

86. †STURNUS UNICOLOR, Marm. Sardinian Starling. "*Estorninho.*"

Of the abundance or scarcity of this bird I am unable to form any opinion, as, if common, it is doubtless frequently confounded with its better-known congener. I did not see it in the flesh, but I was fortunate in finding a good specimen at the house of the only taxidermist which Lisbon can boast. For the convenience of future inquirers, I may add that his address, which I only discovered after several days' fruitless search, is 158 Rua do Moinho da Vento, and that over a diminutive shop, No. 47 in the same street, he has placed the encouraging announcement, "*Casa perparaçao de productos Historia Natural.*" He is a most civil and obliging man; and as his daily business is to prepare objects for the museum, practice has made him a tolerable performer on birds. There is also a second individual who calls himself "bird-stuffer," living near the fruit-market, and not far from the post-office; but his stock-in-trade consisted of about forty Parrots, deformed to the last degree by his most unskilful hand. To return to *S. unicolor*,—that it is a distinct and true species I have no doubt, first, from the plumage, which, in all the specimens I saw, is wholly different from that of *S. vulgaris*, and, again, from its habit of keeping in separate flocks, and not associating with its commoner relative; and this, I was assured, on repeated inquiry, was its universal custom.

87. *FREGILUS GRACULUS (Linn.). Chough.

88. *FREGILUS PYRRHOCORAX (Linn.). Alpine Chough.

I feel compelled to speak with a certain degree of doubt as to

the last of these two species—though, when wandering with my gun, as I did for several days amidst the rocky heights above Cintra, 2000 feet above the sea, and, looking down on the broad Atlantic and the mouth of the Tagus, I fell in with several parties of Choughs, some of which were unmistakeably distinguishable as the common Chough by the vermilion colour of their beaks, and others appeared to me, as I watched them through the glass, to belong to the Alpine species. At all events, both are known to inhabit Portugal.

89. *CORVUS CORAX, Linn. Raven. “*Corvo*.”

90. †CORVUS CORONE, Linn. Carrion-Crow. “*Gralha*.”

91. *CORVUS FRUGILEGUS, Linn. Rook. “*Gralha*.”

These are all common. Ravens are especially abundant on the extensive heaths, hunting over the low bushes, and searching for food. I never met with *C. cornix*.

92. †CORVUS MONEDULA, Linn. Jackdaw.

By no means abundant, and I scarcely think common.

I could learn nothing of *C. monedula-nigra*; supposing such a species to exist, which I very much doubt, at any rate in this country, supposed to be one of the strongholds of the bird, the very name seems wholly unknown. Surely it is but a variety of our common species‡.

93. *PICA MELANOLEUCA, Vieill. Magpie. “*Pega*.”

Common everywhere.

94. †CYANOPICA COOKI, Bonap. Azure-winged Magpie. “*Rabilongo*.”

This beautiful bird was the chief prize I proposed to myself to procure before I started for Portugal, as I fondly hoped from Mr. Mathews’s account, before mentioned, that I should have no difficulty in finding it. But though I wandered for days in search of it, in the most likely spots, I never saw it alive; indeed Prof. du Bocage assured me that, though by no means rare, it is very local, and of so exceedingly shy a nature that it

‡ [The figures and descriptions of this supposed species, which, if distinct, would seem to be properly called *C. spermolegus*, Vieill., agree very well with the young of the common Daw.—ED.]

is seldom seen, and that, though he has employed collectors to hunt expressly for it, he cannot obtain additions to the three specimens which the Lisbon Museum possesses. Thus, to my chagrin, I left Portugal without a single example, though, when on my return home through Madrid, I fell in with three skins and three eggs of this bird at the shop of Señor Sanchez, in the Calle de Alcala, with whom I had dealings years ago.

95. *GARRULUS GLANDARIUS (Linn.). Jay. "*Gaio.*"
Extremely common everywhere.

96. †PICUS VIRIDIS, Linn. Green Woodpecker. "*Pica-pau verde.*"

97. †PICUS MAJOR, Linn. Great Spotted Woodpecker. "*Pica-pau malhado.*"

98. †PICUS MEDIUS, Linn. Middle Spotted Woodpecker. "*Pica-pau malhado.*"

All these species are said to be common; the two former abundant. Of *P. minor* I was unable to find any trace.

99. †JYNX TORQUILLA, Linn. Wryneck. "*Papa-formigas.*"

100. *CERTHIA FAMILIARIS, Linn. Common Creeper. "*Trepadeira,*" "*Atrepa.*"

101. *TROGLODYTES PARVULUS, Koch. Wren. "*Carri-cinha das moitas.*"

102. †SITTA EUROPÆA, Linn. Nuthatch.

103. †UPUPA EPOPS, Linn. Hoopoe. "*Poupa.*"

104. *CUCULUS CANORUS, Linn. Common Cuckoo. "*Cuco.*"

The above six representatives of their several genera are all pronounced common in Portugal, though I suppose none of them are very abundant. The Hoopoe is often met with in summer. I did not hear the Cuckoo until April 25th.

105. †CUCULUS GLANDARIUS, Linn. Great Spotted Cuckoo. "*Cuco rabilongo.*"

This is another old Egyptian friend which I hoped to find in Portugal; but though not very rare in summer, it is a late visitor, and had not arrived when I left.

106. †CORACIAS GARRULA, Linn. Roller. “*Rolheiro*.”

Very rarely seen.

107. †MEROPS APIASTER, Linn. Bee-cater. “*Abelharuco*,” “*Melharuco*.”

Very common throughout the summer; but this is the only species of the genus *Merops* which I could hear of as visiting Portugal.

108. *ALCEDO ISPIDA, Linn. Kingfisher. “*Pica-peixe*,” “*Guarda-rios*.”

Common.

109. *HIRUNDO RUSTICA, Linn. Swallow. “*Andorinha*.”

110. *HIRUNDO URBICA, Linn. Martin. “*Andorinha*.”

111. †HIRUNDO RUPESTRIS, Scop. Crag-Swallow. “*Andorinha das rochas*.”

112. CYPSELUS APUS (Linn.). Common Swift. “*Andorinhão*,” “*Gaivão*,” “*Ferreiro*.”

113. †CYPSELUS MELBA (Linn.). Alpine Swift, “*Andorinhão*,” “*Gaivão*,” “*Ferreiro*.”

These five species are all common in their respective haunts. I did not myself recognize *C. melba* amongst the innumerable Swifts for ever careering before my windows at Lisbon; but I am assured, on the best authority, that it is very abundant.

114. †CAPRIMULGUS EUROPEUS, Linn. Night-jar. “*Noitibó*.”

Though pronounced common, I do not imagine that this bird is very frequently met with in Portugal. In the Museum of Lisbon there is but a single specimen.

115. †CAPRIMULGUS RUFICOLLIS, Natt. Russet-necked Night-jar. “*Noitibó*.”

Here is another species which I anxiously hoped to obtain in Portugal; but I found that it was extremely rare, but very few specimens having ever been met with in that country.

116. †COLUMBA PALUMBUS, Linn. Ring-Dove. “*Pombo trocaz*.”

117. †COLUMBA ŒNAS, Linn. Stock-Dove. "*Pombo trocaz*."

118. *COLUMBA LIVIA, Linn. Rock-Dove. "*Pomba*."

119. *COLUMBA TURTUR, Linn. Turtle-Dove. "*Rola*."

All these are common: *C. livia* I found on the rocks about Cintra; *C. turtur* I shot in the beautiful woods of Montserrat.

120. *PERDIX RUFA (Linn.). Red-legged Partridge. "*Perdiz*."

This is the only recognized Partridge of Portugal, and is very abundant, the markets well supplied with them when I was there, even so late as May. Mr. Tristram writes of it:—"Your specimen is much brighter than our English Red-leg; the chestnut on the head and upper back is much brighter, and the ash-brown of the lower back much more distinct and contrasted with the rufous above; the ochreous abdomen and lower tail-coverts are much paler."

121. †PERDIX CINEREA, Lath. Common Partridge.

This species is extremely rare in Portugal, and would not be admitted into this list, but for the accidental circumstance that a specimen was killed and preserved for the Lisbon Museum just before my arrival.

122. *COTURNIX COMMUNIS, Bonnat. Quail. "*Codorniz*."

Excessively abundant, and the markets were always glutted with them. Of one which I brought home, Mr. Tristram writes:—"The Quail is cleaner and brighter than English, but not so bright as Palestine and Algerian specimens."

123. †TURNIX SYLVATICA (Desfont.). Andalusian Henipode. "*Toirão do mato*."

This pretty species is by no means rare in Portugal; indeed Prof. du Bocage assured me he had often eaten it like any other game, which he naturally considered the most decisive proof of its abundance. I was assured by sportsmen that it is found in wooded districts, and not in the sandy plains assigned as its habitat by Temminck, Yarrell, and others.

124. †PTEROCLES ARENARIUS (Pall.). Sand-Grouse. "*Cortiçol*," "*Barriga negra*."

Common in the open districts.

125. †PTEROCLES ALCHATA (Linn.). Pin-tailed Sand-Grouse.
 “*Cortiçol.*”

Not so common as the last, but by no means rare.

126. *OTIS TARDA, Linn. Great Bustard. “*Batarða.*”

Wild Boar and Great Bustards are the lordly species of game, ground- and feathered, after which the more ambitious Portuguese sportsmen hunt ; and both are found of goodly size and in tolerable abundance in certain districts, more especially in the southern provinces of Alemtejo and Algarve. I was fortunate in procuring a magnificent male bird in the flesh, which was most liberally given me by an English friend, and whose body, after I had taken off the skin, for several days formed a large item in the bill of fare of the Hotel Braganza at Lisbon, the guests of every degree at the *table d'hôte* and in private apartments partaking of the dish, from the British Minister and his family in the first floor, to the cook-boys in the area. The bird weighed 30½ lbs., and is the finest example of *O. tarda* I have ever seen. After being brought down with shot, the *coup de grâce* had been given by cutting its throat with a knife, as is the approved method of Portuguese sportsmen ; it had also been a good deal torn by dogs, but, though thus ill-used, blood-stained, and damaged, it has been admirably cleaned and mounted by Mr. Baker, the well-known taxidermist of Cambridge, and, thanks to his diligence and care, now stands in my collection a noble specimen of the Portuguese ornis.

With the assistance of Dr. Suche, whose anatomical skill was of the greatest service to me, I spent several hours in examining the soft wattle-like protuberance which hung below the chin and throat and gave the whole neck a thick puffy appearance ; the result was, that I entertain no doubt whatever, and, what is of far more value, Dr. Suche was equally positive, that this male Great Bustard possessed a pouch of considerable capacity, or rather (as it seemed to me) a number of membrane-divided sacs, which appeared capable of extending to almost any dimensions, and the larger of which would apparently contain many quarts. I am quite aware that my own attempts at dissection were very poor, and I should not venture to speak thus posi-

tively but for the able assistance in the work, and the positive conclusions deduced therefrom, by Dr. Suche. To this I may add that, on mentioning our work and our unanimous convictions to Prof. du Bocage, he not only cordially concurred with us, but declared that it was impossible for any one to examine the throat and neck of an adult male *Otis tarda* without being convinced by his own senses that such a pouch did exist. Even previously to removing the skin of my bird, the position and size of the large goitre-like excrescence standing out from the neck, though concealed by feathers, could be plainly discerned, and, when handled, at once betrayed the soft yielding nature of its substance.

In regard to plumage, the most remarkable peculiarity of this, as well as of the only other specimen of the Great Bustard which I could find in Portugal, a splendid adult male in the Lisbon Museum, consists in the extremely ruddy or dark chestnut hue which pervades the feathers of the neck and back. In this opinion I am corroborated by Prof. Newton, who has examined my Portuguese specimen.

127. **OTIS TETRAX*, Linn. Little Bustard. "*Cizão*."

This species appears extremely common; indeed it is constantly served at table under the title of "Pheasant:" so plentiful is it that the price I paid for a fine adult male in the poultry-market amounted to no more than two hundred reis, which, however large the figure may seem, represents no more than tenpence halfpenny of our money. In skinning this bird, I found a considerable cellular fatty deposit very thickly covering the interior of the skin of the neck, more especially at the back of it. This I had to remove very carefully and patiently, bit by bit, with the scalpel. It gave the neck a very thick appearance, and, when felt from the outside, was soft, somewhat as in the pouch of *O. tarda*; but in this case there was no trace of pouch or bag.

128. †*EDICNEMUS CREPITANS*, Temm. Stone-Curlew. "*Alcaravão*."

129. †*GLAREOLA PRATINCOLA* (Linn.). Pratincole. "*Perdiz do mar*."

130. †CHARADRIUS PLUVIALIS, Linn. Golden Plover. "*Tarambola*."

131. †CHARADRIUS HIATICULA, Linn. Ringed Plover. "*Lavadeira*."

132. *VANELLUS CRISTATUS, Meyer & Wolf. Lapwing. "*Abibe*," "*Abecuinha*."

133. †SQUATAROLA HELVETICA (Linn.). Grey Plover. "*Tarambola*."

These six species are well known in Portugal. *Charadrius minor*, Meyer, and *C. cantianus*, Lath., are also said to be often met with; but of these last I found no specimens in the Museums.

134. †STREPSILAS INTERPRES (Linn.). Turnstone.

By no means common.

135. †HÆMATOPUS OSTRALEGUS, Linn. Oystercatcher. "*Ostraceiro*."

Common.

136. †GRUS CINEREA, Bechst. Common Crane. "*Grou*."

Occasionally met with in the wilder and more unfrequented portions of Alemtejo and Algarve.

137. †ARDEA CINEREA, Linn. Common Heron. "*Garça real*."

Common. *A. purpurea* is also said to be frequently seen.

138. †ARDEA GARZETTA, Linn. Little Egret. "*Garça*."

139. †ARDEA RUSSATA, Wagl. Buff-backed Heron. "*Garça*."

140. †ARDEA RALLOIDES, Scop. Squacco Heron.

These three species are all represented in the Lisbon Museum by Portuguese specimens, but, with the exception of *A. russata*, are considered somewhat rare.

141. †ARDETTA MINUTA (Linn.). Little Bittern. "*Garça pequena*."

142. †BOTAURUS STELLARIS (Linn.). Common Bittern. "*Gallinhola real*."

Though not common, both these species are frequently met with.

143. †NYCTICORAX GRISEUS (Linn.). Night-Heron.
Seldom seen in Portugal.

144. *CICONIA ALBA, Bechst. White Stork. "*Cegonha*."

145. †PLATALEA LEUCORODIA, Linn. White Spoonbill.
"*Colhereiro*."

Both these birds are to be met with in Alemtejo. *Ibis falcinellus* is also reported to be found in the same district.

146. †NUMENIUS ARQUATA (Linn.). Common Curlew.
"*Maçarico real*."

147. †NUMENIUS PHEOPUS (Linn.). Whimbrel. "*Maçarico*."

Both these species are common.

148. †NUMENIUS TENUIROSTRIS, Vieill. Slender-billed Curlew. "*Maçarico*."

Frequently met with, though not so common as its congeners.

149. †TOTANUS CALIDRIS (Linn.). Common Redshank.
"*Chalréta*."

150. †TOTANUS HYPOLEUCUS (Linn.). Common Sandpiper.

Both species common. These are the only representatives of the genus *Totanus* which I met with. I heard, however, of several other species, as *T. fuscus* (Linn.), *T. ochropus* (Linn.), and *T. glottis* (Linn.), but all, so far as I could ascertain, rather rare.

151. †HIMANTOPUS CANDIDUS, Bonnat. Black-winged Stilt.

This species is undoubtedly common, as is also *Recurvirostra avocetta*, Linn., known in Portugal under two names, "*Alfayate*" and "*Frade*." I did not, however, meet with it alive or dead.

152. †LIMOSA AEOCEPHALA (Linn.). Black-tailed Godwit.
"*Maçarico gallego*."

This species is pronounced common. Not quite so often met with, but by no means rare, is its congener *L. lapponica* (Linn.), known also as "*Maçarico gallego*."

153. †SCOLOPAX RUSTICOLA, Linn. Woodcock. "*Gallinhola*."

154. †SCOLOPAX GALLINAGO, Linn. Common Snipe. "*Narseja ordinaria*."

155. †SCOLOPAX GALLINULA, Linn. Jack Snipe. "*Narseja pequena*."

All very plentiful, more particularly the last. *S. major*, known as "*Narseja grande*," is also said to be sometimes seen, and *Machetes pugnax* (Linn.) is pronounced common, though I saw no specimen of either.

156. *TRINGA ALPINA, Linn. Dunlin.

This is the only member of the genus with which I fell in; and all the species (the present included) are considered rare in Portugal. Of the present, however, I am in a position to assert the abundance, as I procured several specimens at different times. Other species known to occur in Portugal are *T. temmincki*, Leisl., and *T. subarquata* (Güldenst.); *Calidris arenaria* (Linn.) is also said to be sometimes seen.

157. †CREX PRATENSIS (Bechst.). Corn-Crake. "*Codor-nizão*."

Though the only member of the genus in the Museum at Lisbon, this species is pronounced rare in Portugal; while its congeners *C. porzana* (Linn.), (in Portuguese, "*Franga de agua*" and "*Rabiscoelha*), *C. minuta* (Pall.), Little Crake, and *C. pygmæa*, Naum., Baillon's Crake, are declared to be very common.

158. †RALLUS AQUATICUS, Linn. Water-Rail. "*Frango d'agua*."

159. †GALLINULA CHLOROPUS (Linn.). Water-hen. "*Gal-linha de agua*."

160. †FULICA ATRA, Linn. Common Coot. "*Galeirão*."

The above three species are all common. Less abundant, but yet well known, is *Fulica cristata*, Gmel., called also "*Galeirão*."

161. †PORPHYRIO VETERUM, S. Gmel. Purple Water-hen. "*Camão*."

There are many specimens of this beautiful bird in the

Museums of Lisbon and Coimbra, and on inquiry I was assured that it was by no means considered rare in Portugal.

162. †ANSER CINEREUS, Meyer & Wolf. Grey Goose. "*Ganso bravo*."

163. †ANSER SEGETUM, Bechst. Bean-Goose. "*Ganso bravo*."

These two species alone have been recognized in Portugal, though it is probable there are several others not yet identified.

164. TADORNA BELONI, Steph. Common Sheldrake. Occasionally, though only rarely seen.

165. †ANAS CLYPEATA, Linn. Shoveller. "*Pato trombe-teiro*."

166. †ANAS STREPERA, Linn. Gadwall. "*Frisada*."

167. †ANAS ACUTA, Linn. Pintail. "*Rabijunco*."

168. *ANAS BOSCHAS, Linn. Wild Duck. "*Pato-real*."
"*Adem*."

169. †ANAS QUERQUEDULA, Linn. Garganey. "*Marreco*,"
"*Marrequinho*."

170. †ANAS CRECCA, Linn. Teal. "*Marreco*." "*Marrequinho*."

171. †ANAS PENELOPE, Linn. Wigeon. "*Assobiadeira*."

These are the commoner species of Ducks which I was able to identify, all of which are declared to be common.

172. †ANAS ANGUSTIROSTRIS, Ménétr. Marbled Duck.
"*Pardilheira*."

There is a fine specimen of this rare Duck in the Museum of Lisbon; but Prof. du Bocage said it was very seldom found in Portugal.

173. †ÆDESMIA NIGRA (Linn.). Common Scoter.
Occurs frequently, but in no great numbers.

174. †FULIGULA NYROCA (Güld.). Ferruginous Duck.
Rarely seen. Other Ducks of this genus, reported to frequent Portugal, but which I did not see, are *F. ferina* (Linn.), "*Tarrantana*," *F. cristata* (Leach), "*Negrinha*" (both these

said to be common), and *F. clangula* (Linn.), Golden-eye, announced as rare.

175. †*MERGUS SERRATOR* (Linn.). Red-breasted Merganser. "*Merganso*."

Common. This is the only species of the Mergansers which I can positively assert to belong to Portugal, though doubtless others will be added on further research.

176. †*PODICEPS NIGRICOLLIS* (Gmel.). Eared Grebe. "*Mergulhão*."

177. †*PODICEPS MINOR* (Gmel.). Little Grebe. "*Mergulhão*."

Of the abundance or scarcity of the Grebes I could ascertain but little: the Museums of Lisbon and Coimbra are sadly deficient in them; but I am told that the two species mentioned above are common in Alemtejo—and that *P. cristatus* (Linn.), the Crested Grebe (also under the title of "*Mergulhão*") is not unknown, though less abundant than the others.

178. †*COLYMBUS GLACIALIS*, Linn. Great Northern Diver.

179. †*COLYMBUS SEPTENTRIONALIS*, Linn. Red-throated Diver.

Of the former but few individuals have been seen on the Portuguese coast in winter; of the latter a larger number: and it is confidently asserted that *C. arcticus*, Linn., occasionally makes its appearance.

—180. *URIA TROILE* (Linn.). Common Guillemot. "*Airo*."

Abundant in suitable localities; much more rarely, but occasionally, are seen *Fratercula arctica* (Linn.), the Puffin, called in Portuguese "*Papagaio do mar*," and *Alca torda*, Linn., known to the natives as "*Tórda mergulheira*."

There is also a fine specimen in the Museum at Lisbon of *Alca impennis*, the Great Auk; but this has no pretence to Portuguese origin, as it was coaxed by the present king from his father-in-law, Victor Emanuel, and was brought from Turin. I may here add that the late king, Dom Pedro, was an enthusiastic ornithologist, and to his exertions, ably seconded by Prof. du Bocage, the present very satisfactory state of the

Museum at Lisbon is due. The late king's collection of birds is now incorporated in the national collection, of which the present king Dom Luiz is a munificent patron.

181. †*PHALACROCORAX CARBO* (Linn.). Cormorant. "*Corvo marinho*."

182. †*PHALACROCORAX GRACULUS* (Linn.). Shag. "*Corvo marinho*."

183. †*SULA BASSANA* (Linn.). Gannet. "*Ganso patóla*."

All three species found in various parts of the coast.

Pelicanus onocrotalus, Linn., "*Pelicano*," is also from time to time seen in Portugal.

184. †*STERNA FLUVIATILIS*, Naum. Common Tern. "*Andorinda do mar*."

185. †*STERNA MINUTA*, Linn. Lesser Tern.

186. †*STERNA CANTIACA*, Lath. Sandwich Tern.

These three species are well known in Portugal, as is said to be also *S. fissipes*, Linn., the Black Tern.

187. **LARUS RIDIBUNDUS*, Linn. Black-headed Gull. "*Gaivota*."

188. **LARUS RISSA*, Linn. Kittiwake Gull. "*Gaivota*."

189. **LARUS FUSCUS*, Linn. Lesser Black-backed Gull. "*Alcatraz*."

190. **LARUS ARGENTATUS*, Gmel. Herring-Gull. "*Alcatraz*," "*Gaivota*."

191. †*LARUS MARINUS*, Linn. Great Black-backed Gull.

These five species are all in the Portuguese collection of the Lisbon Museum; the four first are reported to be common, the last rare. I had a good opportunity while in Lisbon of watching the Gulls on the Tagus from my windows in the Hotel Braganza, situated in a commanding position overlooking the river, and with the glass identified to my own satisfaction *L. ridibundus*, *L. rissa*, and *L. argentatus*.

192. †*THALASSIDROMA LEACHI*, Temm. Forked-tailed Petrel.

—193. †*THALASSIDROMA PELAGICA* (Linn.). Storm-Petrel.
 “*Alma de mestre.*”

Both species are considered rare in Portugal—the former more especially; and yet, if there be truth in the popular tale of the love of storms which these birds evince, unquestionably the proximity to Portugal of the tempest-tossed Bay of Biscay should attract the whole race of such boisterous spirits to its shores. Lastly, I would add that *Puffinus major*, Fab., the Greater Shearwater, and *Puffinus anglorum*, Boie, the Manx Shearwater, are said to be well known in Portugal.

In the above list I have enumerated 193 species as identified by myself, either in the flesh, or in the Portuguese collections at Lisbon and Coimbra. I have also made mention of 57 others as confidently asserted to be well known in Portugal by those on whose accuracy I could rely. This will make a total of 250. I am well aware that the catalogue is most imperfect; indeed, as I have already said, it only lays claim to be an outline, the details of which I trust will be shortly filled in by some more competent observer.

I have but one remark to make in conclusion; and that is in reference to the extremely dark hue which almost universally seems to characterize the birds of Portugal. This peculiarity struck me on my first arrival in the country, and its existence was confirmed with every day's further observation, while the remarks given above of Mr. Tristram on the skins I submitted to him amply confirm my own previous impression. Whether such deepening of colour arises from the intense heat of Portugal, and, like the inhabitants of that sultry clime, they are simply sunburnt and bronzed, or whatever be the cause, I must leave it to others to determine; enough for me to call attention to the fact.

And, as a last word, let me heartily recommend, not only to my brother ornithologists, but to tourists generally, a trip to that extreme south-western corner of Europe, now so accessible both by sea and land, and which offers so many and so various attractions—a warm and dry climate to the health-seeker, unrivalled ecclesiastical and conventual remains of a unique cha-

racter to the ecclesiologist and the architect, beautiful scenery to the artist, and novel customs amidst an obliging and hospitable people to the general tourist; while to the naturalist in every branch, the geologist, the botanist, the entomologist, the zoologist generally, there is a rich harvest of facts to be reaped in a field which, though so near our shores, and now so easy of access, is perhaps less known to the travelling public than any other region of Europe.

XXXV.—*A Ninth additional List of Birds from Natal*.*

By J. H. GURNEY, F.Z.S.

(Plate X.)

THE birds comprised in this list have, with the exception of the first, been transmitted to me by my valued correspondent Mr. Thomas Ayres, together with the following notes upon them and upon some other species included in my previous lists of the Birds of Natal. Many of the latter notes have been made by Mr. Ayres in the Transvaal, and refer to species which are found in the territory of that republic as well as in the colony of Natal. As on previous occasions, my remarks are distinguished from those of Mr. Ayres by brackets and initials.

An error having occurred in the enumeration of the species in my former lists by the double insertion under different names of one species, as before explained (*anteà*, pp. 157, 158), I commence the enumeration of the present list with

307 A. BRACHYOTUS PALUSTRIS, Bp. Short-eared Owl.

[Having previously mentioned (*anteà*, p. 150) that the Zoological Society of London possesses a Natal specimen of this Owl, I only insert it here for the sake of including it in my enumeration of the species which I have seen from that Colony.—J. H. G.]

308. CYPSELUS GUTTURALIS, Vieill. South-African Alpine Swift.

Female. Iris dark hazel; eye full; bill black; tarsi feathered, toes dusky.

* *Vide supra*, p. 40.





These Swifts are met with in flights, and fly with extreme rapidity; the specimen sent was shot in December from amongst a flight on the feed.

309. *CORACIAS PILOSA*, Lath. White-naped Roller.

This Roller is not uncommon in Natal during summer, and it also occurs on the river Limpopo*; it is generally found either solitary or in pairs. The young birds may be readily reared, as they feed well on raw meat or insects; but they are troublesome from the loud discordant notes which they almost constantly utter. They give their food a toss before swallowing it, and in fact toss it down their throats.

[Mr. Layard (B. S. Afr. p. 60, No. 93) includes this species under Swainson's name of *C. nuchalis*; but I follow Dr. Hartlaub (Orn. Westafr. p. 30) in using for it Latham's prior appellation. It is figured by Levaillant (Rolliers, pl. 29); but his preceding plate (pl. 28), cited by Dr. Hartlaub as representing this species, appears to have been taken from a specimen of *C. indica*.—J. H. G.]

310. *CORACIAS CAUDATA*, Linn. Long-tailed Angola Roller.

This species, like the preceding one, is found in Natal and also on the river Limpopo, in which latter locality the specimens sent of this and also of the White-naped Roller were obtained.

[This species is well figured by M. Desmurs (Icon. Orn. pl. 28)—a fact not mentioned by Mr. Layard.—J. H. G.]

311. *CRATEROPUS JARDINII*, A. Smith. Jardine's Crateropus†.

Iris bright reddish-yellow; bill black; tarsi and feet dusky. I found these birds inhabiting the bush near the Tugela‡; there was a family of eight or nine together, but I only succeeded in getting the specimen sent. They have a loud chattering note and a rather heavy flight; the stomach of the bird sent contained caterpillars. I have never met with them

* The district of the river Limpopo is claimed by the Government of the Transvaal as belonging to the territory of that republic.—J. H. G.

† *Vide antea*, p. 266, note.

‡ Accidentally misspelt "Jugela," *antea*, p. 44.

on the coast, and believe they are entirely confined to the upper districts; they are, however, also found on the river Limpopo.

312. *HYPHANTORNIS OLIVACEUS* (Hahn). Cape Weaver-bird.

Male. Iris light tawny-yellow; bill dusky; wing yellowish underneath; tarsi and feet pale dusky.

These Weavers are exceedingly fond of sucking the nectar from the flowers of the Cape-Broom, a thorny tree which bears a bright scarlet blossom before the leaves appear, and is common all along the coast, where it blooms in the very early spring. They also feed on insects; their flight is heavy and undulating. They are sometimes solitary, and at other times to be seen in companies. These birds are more numerous in the Transvaal than in Natal, and breed there side by side with *Euplectes sundevalli*, and apparently in equal numbers. Their nest is also composed of the same material as is used in the nest of that species; it is woven to two or more reeds, and consists of the leaves of the reeds torn into strips. The nest is in the shape of a retort with the neck cut off, the opening being downwards; and there is a sort of bar across the entrance, which prevents the eggs from rolling out: it is lined with the soft flowering heads of grass, which form a very warm bed for the young birds.

313. *FRINGILLARIA TAHAPISI* (A. Smith, Rep. Exp. C. Afr. p. 48); *Emberiza septemstriata*, Rüpp., N. Wirbelth. Taf. 30, fig. 2.

The specimen sent was shot by me in November, at the upper drift of the Tugela, amongst the thorn-bushes. There were three of them together, feeding amongst the short grass.

314. *GEOCOLAPTES OLIVACEUS* (Gmel.). South - African Ground-Woodpecker.

Male. Iris light ashy brown; bill black; tarsi and feet light ash-colour. I first met with these Woodpeckers at the Movi River, creeping with much agility amongst the crevices and holes in some loose stone walls erected by the Caffres as enclosures for their cattle. One of the birds sent I captured alive, after having pulled down a large piece of wall; the unfor-

tunate fellow at last got into a hole that was blocked up at the end. I also saw some of the same species climbing the face of a large perpendicular rock and searching for insects exactly in the same manner as other Woodpeckers examine a tree.

Their stomachs contained beetles, evidently taken from amongst the stones.

315. *NUMIDA CORONATA*, G. R. Gray. Crowned Guinea-fowl*.

Male. Iris dusky; bill blood-red, except the tip and under mandible, which are pale ash-coloured; tarsi and feet black.

These birds are abundant in some of the upper districts of Natal; they are gregarious, and are generally found amongst scrubby bush on the borders of streams and rivers. They run with exceeding swiftness, and in open ground a person on foot would stand but a poor chance of running them up. When in cover they lie very close indeed, and require a good dog to find them; when found they will frequently fly up into the lower boughs of any convenient bush or tree. They are naturally very tame, and easily domesticated, and may be found thus at many farmsteads. In some instances I am informed that they come regularly to feed with the poultry. In their wild state they feed much upon berries, the roots of various grasses, and so forth. They are excellent eating; and a good cock will weigh from three pounds and a quarter to three pounds and a half.

The following remarks refer to species which have been already enumerated in my previous lists of the Birds of Natal.

GYPS FULVUS (Gmel.). Fulvous Griffon Vulture. (No. 5, Ibis, 1859, p. 236.)

The only nest of this Vulture which I have met with in the Transvaal was placed on a thorn-tree; and, though but a short distance from the ground, it was, from the denseness of the boughs and the innumerable thorns, not easy to get at.

FALCO BIARMICUS, Temm. Latakoo Falcon. (No. 66, Ibis, 1860, p. 207; 1862, p. 154.)

* *Vide antea*, p. 253, note.

This species seems to be equally distributed through Natal and the Transvaal.

CIRCUS RANIVORUS (Daud.). Le Vaillant's Harrier. (No. 24, Ibis, 1859, p. 242; 1860, p. 204.)

These Harriers are exceedingly plentiful about the reedy swamps of the Transvaal; and, during the summer months, they appear to congregate towards evening over one particular portion of a swamp, flying and wheeling round and round till darkness puts an end to their meeting, when they retire singly or in pairs to their beds amongst the high rushes. I have counted as many as thirty in these assemblies; they are easily shot in the dusk of the evening, their sight being apparently anything but good at that time.

COTYLE PALUSTRIS (Steph.); *Hirundo paludicola*, Vieill. South-African Sand-Martin. (No. 219, Ibis, 1864, p. 347.)

This Martin is as common in the Transvaal in June and July as it is in the upper districts of Natal. They are fond of following the course of a river, skimming along with rather eccentric flight within a few feet of the surface of the water.

Specimens with the under parts dark and entirely whole-coloured, are to be seen in company with the white-bellied birds, but are not nearly so common.

[The whole-coloured variety of this Martin is mentioned by Mr. Layard (B. S. Afr. p. 58, No. 91).—J. H. G.]

PRATINCOLA RUBICOLA (Linn.); *P. pastor*, Strickland. Stonechat. (No. 77, Ibis, 1860, p. 208; 1868, p. 157.)

This species is common throughout the Transvaal, breeding in walls and banks.

SAXICOLA MONTICOLA, Vieill. Mountain-Wheatear. (No. 290, Ibis, 1868, p. 44.)

These Chats are to be found in many localities in the open country of the Transvaal, frequenting rocky situations. Their nests are generally placed in crevices within a few feet of the ground; but at some of the farmhouses they may be seen having taken possession of an unfinished Swallow's nest under the eaves, where, if not interfered with, they become exceedingly tame. Though sombre in colour, they immediately attract the

sight by frequently spreading the tail and showing its snow-white feathers. They are also frequently to be found amongst the ant-hills which are so abundant in the Transvaal.

JUIDA BICOLOR (Gmel.). White-rumped Grakle. (No. 294, Ibis, 1868, p. 46.)

These birds excavate holes for their nests in the perpendicular banks of the Vaal River, two or three feet from the surface of the ground, and from two to four feet deep, horizontally. The same holes appear to be used for successive seasons, being merely pierced further each year. The nest is composed of coarse grass, lined with wool, hair, and feathers; the eggs are from two to six in number.

CHERA PROGNE (Bodd.). Great Widow-bird. (No. 137, Ibis, 1861, p. 133.)

The nest of this species is placed close to the ground, in a tuft of long grass, to the blades and stalks of which it is roughly woven or joined; it is rather a rough structure, composed of fine grass and lined with the seed-ends; the opening is at the side. The eggs are almost invariably four in number.

EUPLECTES SUNDEVALLI, Bp. Sundevall's Bishop-bird. (No. 267, Ibis, 1865, p. 269.)

I have found these Finches breeding in companies in many reedy vleys and pools, and also in great abundance in the swamps of the Transvaal; their nests are very compact purse-like structures, hung between two upright reeds, and composed of the leaves of reeds torn into fine strips (easily mistaken for grass), and woven together with great neatness and care. The entrance is placed on the upperside of the nest, and always facing the water, and is covered with a porch formed of the flowering ends of grass, with which downy material the nest is also lined. The eggs are generally from two to four in number.

This species assembles in immense flocks, both in winter and in summer. In the latter the flocks appear to consist almost entirely of males in their gaudy red and black dress; and twenty or thirty of these splendid birds may then be killed at a single

shot. They generally feed on the ground, where they find a plentiful supply of fallen grass-seeds, but they are also very destructive to the crops of wheat.

[The preponderance of males in full nuptial dress may probably be due to the females being then occupied in incubation.—J. H. G.]

HYPHANTORNIS MARIQUENSIS (A. Smith, Zool. S. Afr. pl. 103); *H. nigrifrons*, Cab., Mus. Hein. i. 182. Capricorn Weaver-bird. (No. 209, Ibis, 1863, p. 329.) (Plate X.)

In summer plumage the male has the iris bright crimson, the bill black, tarsi and feet pale dusky. In winter the iris is light brown, the bill, tarsi, and feet pale dusky. The iris, tarsi, and feet of the female, both in winter and summer, resemble those of the male in his winter garb.

These birds are common in the Transvaal, congregating in small flocks during the winter. In summer the male, in his handsome clothing, may frequently be found alone, or occasionally in company with other Finches, such as *Euplectes sundevalli*. They build among the high reeds.

[The winter dress of the male bird, and the plumage of the female throughout the year, are well portrayed in Sir A. Smith's plate above cited; but the male in breeding-plumage has, I believe, not as yet been figured; and I am therefore glad to be able to refer my readers to the annexed representation, by Mr. Wolf, of a male specimen in that dress, which was sent from the Transvaal by Mr. Ayres. It appears to me to be identical with that described by Mr. Layard (B. S. Afr. p. 180, No. 357) under the name of *H. nigrifrons*, Cab., except that the latter seems to have been taken from a slightly larger specimen.

I may remark that the male of an allied North-African species, *H. sublarvatus*, J. W. Müller, appears to undergo a very similar change of plumage in the breeding-season, and is figured in both spring and winter dress by that naturalist (Ois. d'Afr. pl. 12).

An accidental error seems to have occurred in a statement as to *H. mariquensis* made by Mr. Layard (B. S. Afr. p. 182). Its whole length, as given by Sir A. Smith (*loc. cit.*), is 5 inches 11 lines, which agrees with the specimens sent to me from the Transvaal.—J. H. G.]

CHRYSOCOCYX AURATUS (Gmel.). Didric Cuckoo. (No. 41, Ibis, 1859, p. 247; 1868, p. 163.)

I found these Cuckoos plentiful in December among the low mimosa thorns and wood bordering the rivers and streams in the upper districts of the colony of Natal, and also among the fruit-trees in the scattered town of Potchefstroom. They are most fond of apple-trees, where, I think, they find the caterpillars suited to their taste and upon which they appear entirely to feed. Their note, which is loud and monotonous, is frequently uttered whilst they are flying high over head. Early in the morning they are particularly fond of chasing each other, frequently so high as to be almost out of sight. They are often chased by the Sparrow* and other birds, which appear at once to know a stranger. Like most of our Cuckoos, they appear in summer and are away during the winter months.

* *FRANCOLINUS NATALENSIS*, A. Smith. Natal Francolin. (No. 104, Ibis, 1860, p. 214.)

[Mr. Ayres has sent me this species from the Transvaal, but without any accompanying remarks.—J. H. G.]

FRANCOLINUS SUBTORQUATUS, A. Smith. Coqui Francolin. (No. 105, Ibis, 1860, p. 215.)

The pair sent were obtained near the river Limpopo.

COTURNIX COMMUNIS, Bonn. European Quail. (No. 106, Ibis, 1860, p. 216.)

Found, but not plentifully, in the vicinity of Potchefstroom.

EUPODOTIS CAFFRA (Licht.). Stanley Bustard. (No. 108, Ibis, 1860, p. 216; 1864, p. 360.)

These birds frequently breed amongst the rocks and stones on the top of some hill; the nest is merely a slight excavation scratched in the ground, with perhaps a handful of grass. The eggs are two in number; and the old bird sits so close that she will almost let one tread on her before she rises.

GRUS CARUNCULATA (Gmel.). Caffre Crane. (No. 244, Ibis, 1864, p. 355.)

My friend Mr. G. A. Phillips found a nest of this Crane

* [Perhaps *Passer arcuatus* (Gmel.).—J. H. G.]

containing two eggs, which were on the point of hatching, in a very large lagoon near the Vaal River. The nest was about five feet in diameter, and of a conical form; it was composed of rushes pulled up by the birds, and was placed in water about five feet deep, the eggs being well out of the water.

HOPLOPTERUS ARMATUS, Jard. White-headed Spur-wing Plover. (No. 275, *Ibis*, 1865, p. 271.)

These Plovers are plentiful about Potchefstroom; they frequent the borders of the swamps and Snipe-grounds, and are sometimes found in companies of a dozen together, though generally not more than two or three are met with.

They fly about the intruder on their haunts with loud screams of disapprobation, and keep up a constant clatter, to the annoyance of any one intent upon Snipes or other feathered game, among which they thus produce a state of unwished-for watchfulness.

ARDEA PURPUREA, Linn. Purple Heron. (No. 121, *Ibis*, 1860, p. 220.)

These Herons are very common in the Transvaal, where I have frequently seen as many as ten or twelve together; they appear to vary very much both in size and plumage.

[The Purple Heron appears to be even more numerous in India than it is in South Africa; thus Mr. F. Day (*Land of the Permauls*, p. 472) mentions that in the Malabar state of Cochin these Herons, "at the commencement of the year, may be seen towards evening flying in flocks of some hundreds in an irregular line towards their feeding-grounds."—J. H. G.]

ARDEA BUBULCUS, Savig. Buff-backed Heron. (No. 215, *Ibis*, 1863, p. 330.)

This species is exceedingly numerous in the Transvaal; in winter it loses the buff-coloured plumes on the back and neck, and appears in a pure white dress.

HERODIAS GARZETTA (Linn.). Little Egret. (No. 122, *Ibis*, 1860, p. 221.)

These Egrets are much more numerous about the swamps of the Transvaal than they are in Natal.

ARDETTA MINUTA (Linn.). Little Bittern. (No. 52, Ibis, 1859, p. 249; 1860, p. 205.)

The Little Bittern is common amongst the reedy swamps and banks of rivers in the Transvaal, where it lies close amongst the reeds and hedges, and is not always easily flushed; its flight is never lengthened.

TRINGOIDES HYPOLEUCUS (Linn.). Common Sandpiper. (No. 139, Ibis, 1861, p. 134.)

This species occurs in the Transvaal, but is scarce.

TRINGA MINUTA, Leisl. Little Stint. (No. 281, Ibis, 1865, p. 272.)

These Sandpipers are occasionally found in considerable flights on the mud-flats and borders of pools in the Transvaal. They are very shy and difficult of access, and their flight is very rapid.

PORPHYRIO SMARAGDONOTUS, Temm. Green-backed Porphyrio. (No. 56, Ibis, 1859, p. 249.)

Iris red; bill and frontal shield blood-red; thighs, tarsi, and feet dark pink. This beautiful species is found, though not abundantly, in the more extensive swamps and lagoons in the colony of Natal, and seems to be pretty generally distributed, though, in consequence of its close and shy habits, it is not easily obtained. These birds generally remain amongst the high rushes and reeds; but during the winter, in the mornings and evenings, they often leave their cover to catch the first and last rays of the sun, and they are then frequently to be found perched on a clump of rushes or reeds; they make many extraordinary noises, most unmusical and quaint. Their food consists of the inner and soft parts of the shoots of reeds and of other water-plants; these may be found in their stomachs chopped up like chaff by their powerful bills, which no doubt are expressly provided for peeling off the outer bark and hard parts of the plants they feed upon.

There appears to be but little difference between the sexes; but the female bird is, if anything, the smaller of the two.

[Mr. Layard (B. S. Afr. p. 341) includes this species under the name of *P. erythropus* proposed for it by Shaw in 1824;

but Temminck's name of *P. smaragdonotus*, having been assigned to it in 1820, has priority. I have to thank Mr. G. R. Gray for supplying me with the respective dates of these two designations.

Some naturalists have supposed this species to be identical with *P. madagascariensis* (Lath.); but having compared four specimens of the Madagascar form, obtained by Mr. E. Newton, with examples of the South-African from Natal, I have no hesitation in considering them specifically distinct, the first having a longer and more powerful bill than the last, and also a longer tarsus and larger foot, as will appear from the following measurements taken from adult males of each species:—

	Length of maxilla along tomia.	Height of maxilla at nostril.	Length of tarsus.	Length of middle toe with claw.
<i>P. madagascariensis</i> ..	1·625 in.	·625 in.	3·625 in.	4·75 in.
<i>P. smaragdonotus</i>	1·375 „	·5 „	3·125 „	4·25 „

I should, however, add that the length of the wing from the carpal joint to the tip of the primaries, and also the colour of the plumage, appear to be the same in both species.—J. H. G.]

LIMNOCORAX NIGER (Lath.); *Gallinula flavirostris*, Swains. Black Gallinule. (No. 176, Ibis, 1862, p. 35.)

These Gallinules are common along the Movi River, and are exceedingly fond, on sunny days, of issuing from the reeds and hunting for insects on dead reeds fallen across the stream; they then look exceedingly pretty with their bright red legs, green bill, and chaste plumage.

[An immature specimen, obtained by Mr. Ayres, closely resembles, in the colour of its plumage, the young of *G. chloropus*.—J. H. G.]

FULICA CRISTATA, Gmel. Crested Coot. (No. 184, Ibis, 1862, p. 153.)

These birds are much more abundant in the Transvaal than in Natal, and also not nearly so shy. In Natal they are very shy, and maintain a flight for a length of time, examining their ground well before realighting; but in the Transvaal they seem to trust more to hiding and diving for their safety, and, when flushed, fly but a short distance. Frequently have I stood up to my middle in water listening to some cunning old bird

within a few yards of me, and vainly trying to catch a glimpse of him, where there was not enough cover, apparently, to hide a rat. Either these birds must possess the power of ventriloquism, or they must remain under water with perhaps just their bills out; one thing is certain, that they are expert divers.

QUERQUEDULA HOTTENTOTTA, A. Smith. Hottentot Teal. (No. 186, Ibis, 1862, p. 154.)

Tolerably common about the lagoons near Potchefstroom, and found in pairs and small flocks.

PECILONETTA ERYTHORHYNCHA (Gmel.). Crimson-billed Duck. (No. 62, Ibis, 1859, p. 251; 1862, p. 158.)

Far outnumbers all other species of Ducks in the Transvaal.

[I avail myself of the present opportunity to correct an error which unfortunately occurred in my remarks on Mr. Layard's 'Birds of South Africa.' I there stated (*ante*, p. 261), under the head of *Rallus aquaticus*, that I had seen this species from Damara Land. The example to which I referred is in the collection of Mr. Tristram, who has since informed me that it is not a specimen of *R. aquaticus*, but of *R. cærulescens*, Gmel. (No. 629 of Mr. Layard's Catalogue).

I regret that I have not by me the Rail from Natal, which I formerly described in this journal (Ibis, 1859, p. 249, No. 53) as *R. aquaticus*; but I cannot help suspecting that a similar error may have occurred as regards that specimen also, and that it may have been in reality an example of *R. cærulescens*. I am the more disposed to think that such an error may have occurred, as Mr. Ayres informs me that this last is "common in most of the swamps of the Transvaal, where they swim with great ease and quickness, and may often be seen in the evening passing from one clump of reeds or rushes to another in search of their supper."

Mr. Layard gives the length of *R. cærulescens* as 8 inches. This is less than that of a female sent to me by Mr. Ayres from the Transvaal, which measures 10·25 inches from the tip of the bill to the end of the tail; and I may also mention that the specimen from Damara Land, in the collection of Mr. Tristram, is nearly 10 inches in length.—J. H. G.]

XXXVI.—Notices of Recent Ornithological Publications.

1. ENGLISH.

THE Twentieth part of Mr. Gould's 'Birds of Asia' made its appearance on the 1st of April last. It contains representations of the following :—

Falco babylonicus. Mesopotamia, India.	Cecropis daurica. Altai, Dauria, China.
— sacer. N. Asia, Himalaya.	— erythropygia. India.
— lanarius. Palestine to Punjab.	— hyperythra. Ceylon.
Cerionis satyra. Nepaul, Sikkim, Bhotan.	Delichon nipalensis. Nepaul.
Salpornis spilonota. Oude, Behar, Chanda.	Hypurolepis domicola. Nilgherries, Ceylon, Borneo.
Malacoturnix superciliosus. Mus- soorie.	Lagenoplastes fluvicola. Punjab, Cashmere.
Hesperiphona affinis. W. Himalaya.	Melanochlora sultanea. Himalaya to Sumatra.
Cecropis rufula. Palestine.	Callene albiventris. S. India.

Considering the vast host of Asiatic species which have never been figured, we must say we think that Mr. Gould would be more completely consulting the progress of ornithology, if he gave them a preference in selecting the subjects of his magnificent plates. A large proportion of those in the above list have been before figured—some of them many times, and some of them quite recently. Surely it would be time enough to refigure species when all those already unfigured, or only misfigured, were done with. The *Malacoturnix superciliosus* above mentioned is the same species as that called by Mr. Blyth in our last year's volume (*Ibis*, 1867, pp. 313, 314) *Malacortyx superciliaris*, our contributor having, in the space of two months, changed both the generic and specific names, the latter, however, no doubt by a mere slip of the pen. *Hypurolepis* is a new generic name proposed in place of Lesson's *Herse*, which is said to have been previously appropriated by Oken.

It is with extreme satisfaction that we have to notice, and recommend to our readers, Mr. Sharpe's 'Monograph of the *Alcedinidæ*,' of which the first part has lately appeared*. We

* A Monograph of the *Alcedinidæ* or Kingfishers, by R. B. SHARPE. The plates drawn and lithographed by Mr. J. G. KEULEMANS. Part i. July 1st, 1868. London: Roy. 8vo.

cannot in ornithology recollect another instance of a comparatively unknown author entertaining a design so ambitious, and, as far as we can at present judge, completely fulfilling the most sanguine expectation. As the work proceeds we shall, no doubt, often have occasion to mention it; but its meritorious features should at once be made known. The letterpress evinces an amount of care in its preparation which would be creditable to many older and more practised ornithologists. The synonymy and diagnosis of the various species treated, seem to be very well given; and such particulars of their habits as can be gathered from published or unpublished sources are furnished. The plates are exceedingly well drawn and carefully coloured, proving the artist to be a most correct observer of bird-life. The present number contains a figure of *Ceyx wallacii*, lately described as a new species in the Zoological 'Proceedings' by the author, it having been formerly confounded with *C. lepida*. We sincerely trust that Mr. Sharpe may obtain the encouragement his effort deserves, and, by the success of the present undertaking, be induced to continue a series of similar Monographs, than which there could be no more agreeable possession to the ornithologist.

Fully appreciating the spirit which prompted Mr. Collingwood to undertake a voyage to the China seas, we must confess that his book on the subject* is rather disappointing to an ornithologist. We knew, indeed, that he was condescending to animals of low degree; but, still, birds have a place in marine zoology, and we had been in hopes of finding more respecting them in this work. Of those that are occasionally mentioned, some are not correctly named. For instance, though while nearing the Straits of Malacca the author had some hesitation as to whether the Gannets he saw (p. 13) were really *Sula alba*, arrived at Pratas Island (p. 31) he rashly omits the warning mark of doubt, and roundly calls the species by that name, which our

* Rambles of a Naturalist on the shores and waters of the China Seas: being Observations in Natural History during a voyage to China, Formosa, Borneo, Singapore, etc., made in Her Majesty's Vessels in 1866 and 1867. By CUTHBERT COLLINGWOOD, M.A., M.B., F.L.S., &c. London: 1868. 8vo, pp. 445.

readers scarcely require to be told is but a synonym of *S. bassana*, which certainly does not occur in those waters. The "Wide-awakes" of Ascension he more prudently leaves undetermined (pp. 424-426), though most ornithologists know that by that nickname the British sailor commonly means *Sterna fuliginosa* (cf. *suprà*, p. 286). It can hardly be, too, that Mr. Collingwood "saw, and heard sing, the Chaffinch (*Fringilla cælebs*)," at Fayal, as he states (p. 430); no doubt the bird was *F. moreleti* (Ibis, 1866, p. 97). Still, with all these slight blemishes, the book is very interesting; and if an ornithologist can venture to cast the eye of affection on nudibranchiate *Mollusca*, flirt with *Holothuræ*, dally with a *Comatula*, or submit to the embraces of a chain of *Salpæ*, without being false to his own wedded love, he will greatly enjoy the author's pages. We entirely agree, as indeed all naturalists must, with his concluding regrets as to the common neglect of the wonderful advantages which fall to the lot of so many of our naval officers, whether bearing Her Majesty's commission, or engaged in the mercantile marine. In connexion with this last service, Mr. Collingwood's labours are well known; and we only trust that, some day, they will be of good effect.

It would be out of place here to dwell at any length upon Mr. Parker's recent work published by the Ray Society*; the duty of reviewing it belongs rather to the comparative anatomist. Still, as the author must be regarded as one of the very highest authorities on osteology in this country, and, with respect to the class *Aves*, one of the very highest anywhere, we cannot fail to record the appearance of a work than which none more meritorious ever left the press. Looking, as we do, upon the internal structure and development of animals as the only sure base of operations whence we can arrive at a final victory over the difficulties of classification, Mr. Parker's unparalleled researches deserve the attention of every systematic ornithologist. It is an unquestionable fact that the originator of the theory that the fore limbs of Vertebrates, by means of the "shoulder-girdle,"

* A Monograph on the Structure and Development of the Shoulder-Girdle and Sternum in the Vertebrata. By W. KITCHEN PARKER, F.R.S., F.Z.S. London: 1868. Folio, pp. 237, pls. xxx.

are articulated to the occiput, had but very slightly studied the osteology of birds. Not much more can be said, even of the greatest of his disciples. But an error once made and publicly proclaimed by a great man, is hard to correct; and though, to our mind, Mr. Parker has completely disposed of this fallacy, we expect it will be long and often repeated. It is one into which no unbiassed ornithotomist would ever have fallen. If we have a fault to find with this book, it is due to the extraordinary caution with which its author has expressed himself on matters relating to classification. It is clear that he is not satisfied with any system of arrangement as yet proposed; for which, indeed, we are far from blaming him. But we think he might, out of the abundance of his knowledge, have given us something more definite than what we meet with. Quaint and forcible though his language often is, he affords us but little direct aid. "As for Birds in general," he declares, "it is hard to say which is the most *Reptilian* group; for I have found the most unmistakable *Lacertian* characters in the noblest aerial types, whilst the *Struthionidæ*, which undergo the least metamorphosis, come as near to the *Mammalia* as they do to the *Reptilia*. In studying the lower half of the thorax and the Shoulder-girdle of the Bird, I shall 'fetch a compass' round the entire class, beginning with the Penguin, and ending with the Ostrich. I do not, however, intend to make merely a 'coast-survey,' but to travel inland also at various points, so as to learn something of the central tribes. In so doing, I must refer the reader from time to time to the territories we have left behind, and occasionally to that towards which we are led through the various highways and byways of the Bird-class. We might, indeed, gain the *Mammalian Class* by a very short route; for we have but to step from the Crocodile to the Ostrich, and from the Ostrich to the *Monotreme*, and we are landed amongst the creatures that 'make their teats naked, and give suck to their whelps'; but this is not the right way, for every finished and noble Bird-type would be left on the right hand and on the left" (p. 142).

Thus everything around us is in a thick fog. Mr. Parker keeps ringing the bell to bid us go at half-speed. Will he not come on board and tell us how to steer our course rightly?

Ornithologists who wish to understand by what means a bird flies, cannot do better than consult the elaborate and masterly treatise of Dr. Pettigrew, lately published in the 'Transactions of the Linnean Society,' which is one of the most valuable papers that have for a long time appeared in the publications of that venerable body*. Many persons would, of course, readily declare that a bird flies by means of its wings; but, to judge from the numerous mistaken theories which have, at one time or another, been given to the world, few would be able to explain correctly the mechanical principles on which the wings act. This Dr. Pettigrew seems to have done most successfully; and we have to thank him greatly for the care he has bestowed on the study. The paper is a long one, and to furnish such an abstract of it as would do justice to the subject is more than is in our power with the limited space now at our disposal. We must simply be content with referring our readers to the essay, which is of the most comprehensive kind. Beginning with locomotion on land, the author goes on to treat of locomotion on and under water, until, arriving at locomotion in air, he considers the phænomena and principles of Flight in the various classes of the animal kingdom endowed with that faculty. We do not profess to be well acquainted with the literature of the subject; but we observe with pleasure the recognition accorded by Dr. Pettigrew to the observations of Captain F. W. Hutton on the Albatros, as communicated by him to this journal (*Ibis*, 1865, pp. 294-298), wherein, if we are not mistaken, the true explanation of that bird's sailing properties was first enunciated. This interesting treatise is most clearly written, and is illustrated by a number of admirable figures.

2. DUTCH.

We have received the Third Part of Messrs. Schlegel and Pollen's work on the Fauna of Madagascar and the neighbouring islands†, which apparently brings to an end the ornithological

* On the Mechanical Appliances by which Flight is obtained in the Animal Kingdom. By JAMES BELL PETTIGREW, M.D. *Trans. Linn. Soc.* xxvi. pp. 197-277, pls. xii.-xv.

† *Recherches sur la Faune de Madagascar et de ses Dépendances, d'après*

portion of it. The account given of some of the species is certainly meagre, though no doubt the authors have done their best with the materials at their disposal. The distinctness of the *Hypsipetes* of Réunion is rightly enough recognized, though we should prefer terming it *H. atricilla* (Cuv.)*, to using the so-called name of Brisson, *H. borbonica*. There are thus four species of the genus in this subregion :—*H. madagascariensis* (P. L. S. Müller) (*Turdus ourovang*, Gmel.), from Madagascar; *H. olivacea* (Jard.), from Mauritius; *H. crassirostris* (E. Newton), from the Seychelles; and that above mentioned, from Réunion. The authors, we think, make a great mistake in identifying *Turtur rostratus*, indigenous to the Seychelles, with *T. picturatus*, also occurring in those islands, but introduced thither from Madagascar its proper home. The difference between the two was, we should have thought, convincingly shown in this Journal last year (*Ibis*, 1867, pp. 354, 355). Professor Schlegel persists in regarding *Ardea elegans* as identical with *A. garzetta*, in spite of Dr. Hartlaub's remonstrances (*P. Z. S.* 1867, p. 821), while he now admits *A. idæ* as a fourth "conspecies" of *A. leucoptera*, a compromise he was before unwilling to adopt (*P. Z. S.* 1866, p. 425). It will perhaps be remembered that, on his second visit to Madagascar, Mr. Edward Newton recorded (*Ibis*, 1863, p. 461) that he saw, but could not obtain, a *Plotus*. The Dutch naturalists were more fortunate, and procured a specimen from a resident there, which, singularly enough, proves to be the Indian *P. melanogaster*, and not, as might have been expected, the African *P. levaillanti*,—another most remarkable instance of a connexion between the fauna of Madagascar and that of more eastern regions.

Heer H. C. Millies has found, pasted into a copy of Clusius's well-known "*Exoticorum Libri Decem*" in the library of the High School at Utrecht, an original and very interesting representation of the Dodo, inscribed, "*Vera effigies huius avis WALGH-*

les découvertes de MM. François P. L. Pollen et D. C. van Dam. Mammifères et Oiseaux. Par II. SCHLEGEL et FRANÇOIS P. L. POLLEN. Leyde : 1867. Roy. 8vo. (Livraison III.)

* Cf. Pucheran, *Arch. Mus.* vii. p. 340.

VOGEL (*quæ & à nautis DODAERS propter foedam posterioris partis crassitiem nuncupatur*), *qualis viua Amsterdamum perlata est ex Insula MAVRITII. ANNO M.DC.XXVI.*" followed beneath by "*Manu Adriani Vennij Pictoris.*" Of this figure he furnishes a fac-simile, accompanied by some remarks, in the Eleventh Volume of the 'Transactions' of the Academy of Sciences of Amsterdam; and the whole is also published separately*. After describing the discovery (which appears to have been purchased, in 1758, from the library of Prof. E. J. van Wachendorff), he gives an abstract of the history of the species, and then considers the derivation of its various names. "Dodo," he thinks, with Sir Thomas Herbert, is undoubtedly of Portuguese origin, contrary to the opinion of Strickland. The next matter for consideration is the artist by whom the newly-discovered figure was drawn; and the author identifies him with one Adriaan Pieterzoon van de Venne, who was born at Delft in 1589, and died at the Hague in 1665, being principally known as the illustrator of the poems of Jacob Cats. In addition to all this information, the singular fact is extracted from the archives of the Dutch East-India Company that in 1647 the Governor of Batavia sent a live Dodo (*een doddaers vogel van't Eylandt Mauritius*) to the Company's Superintendent in Japan†. Finally, Heer Millies announces that a hitherto unknown coloured representation of the bird, ascribed to Pieter Holsteijn, exists now at Haarlem, in the collection of Dr. A. van der Willigen, who, we regret to say, would not permit of its being copied; and also that there is a figure by the same artist "in a bird-book," which the author, however, has not yet been able to see.

3. GERMAN.

Holland, though her navigators did much to bring the bird to the notice of naturalists, is not allowed to stand alone in the prosecution of Dodo-literature this year. In the January num-

* Over eene nieuw ontdekte Afbeelding van den Dodo (*Didus ineptus*, L.) door H. C. MILLIES. Amsterdam: 1868. 4to, pp. 20.

† This old custom of sending live animals from the Dutch settlements to Japan possibly may serve to explain the occurrence in a Japanese Encyclopædia of the representation of a Struthious bird, which we lately noticed (*anteà*, p. 341).

ber of the 'Zoologische Garten,' a periodical which constantly contains much that is of interest to the ornithologist, Herr Pfarrer Jäckel gives (pp. 35-37) an account of "Eine alte Abbildung des Dronte," another portrait, in addition to the many we have, by Roelandt Savery of this wonderful bird, which exists in the well-known picture-gallery at Pommersfelden, near Bamberg. The Dodo, charmed by the music of Orpheus, is here represented as cooling its toes in shallow water; and the liberality of the Inspector of the gallery—Herr Wollenweber, who accordingly deserves the thanks of naturalists,—has allowed the figure to be copied, though we cannot say that the woodcut seems to be a very artistic production. It differs somewhat from the other representations by the same artist in the curiously elevated tail, but, with this exception, has much their look.

In the Zoological Section of the 'Isis' Society of Dresden, Dr. Behn towards the end of last year communicated some remarks on the Dodo; and the same learned naturalist has since published in the 'Leopoldina' an abstract of Prof. Owen's paper on the Osteology of that bird, to which he has prefixed some remarks on its history and added other particulars respecting it which have escaped the notice of previous investigators. The most remarkable, perhaps, of these is the account given by one Volquard Iversen, a Holsteiner, in a work published first at Sleswig, in 1669, and subsequently at Hamburg*, wherein (p. 195) he says that if one caught a Dodo and held it by the leg it cried out, whereupon others ran up to help the prisoner and were themselves taken. A second very interesting statement is contained in a small volume by one Hoffmann† a Hessian, who speaks (p. 52) of "a singular kind of red bird, called 'Toddärsche' and as big as a common Fowl, which though it cannot fly, yet on that account does not run the less swiftly,"

* *Orientalische Reise-Beschreibung* Jürgen Andersen aus Schleswig und Volquard Iversen aus Holstein &c. Schleswig: 1669, fol.; Hamburg: 1696, fol.

† *Oost-Indianische Voyage* &c., Durch Johann Christian Hoffmann, vormahls D. G. W. auf der Insel Mauritius; itziger Zeit Predigern zu Heckershausen. Cassel: 1680, sm. 8vo.

and then goes on to tell of its being attracted by a piece of red cloth and caught by the hand, just as Cauche says of his "Poules rouges." It would appear from this that in Hoffmann's time one common name of the Dodo had been transferred to another species of bird, in accordance with that odd process of substitution which has obtained in so many countries, where the rightful owner expiring bequeaths (as it were) its titles to a survivor.

But of the "Poule rouge" of Mauritius, just mentioned, there is more to be said. In a most beautiful and elaborate publication* Herr Georg von Frauenfeld has just announced a most interesting discovery made in the private library of the late Emperor Francis of Austria. In this library were two volumes containing a series of pictures of various animals, painted in oil on parchment and of considerable antiquity †. One of these pictures represents what is evidently a Dodo, the other a bird of equal or even greater interest. With the limited space at our disposal we cannot give in detail the different steps of the author's argument; it will be sufficient to say that he almost conclusively fixes these paintings on a certain Dutch painter, Hoefnagel by name, who was born at Amsterdam in 1545 or 1546, and shows the extreme probability of most of them having been drawn from living subjects in the *vivarium* of the then Emperor Rudolf II. The Dodo-picture differs from all others that we know of, and is so far very satisfactory, since it acquits the artist, even if the early period at which he flourished did not preclude it, from the charge (which has been made against some others) of being a copyist. It undoubtedly represents a bird whose "visage," in the words of Herbert, "darts forth melancholy;" and no wonder it may, if the author's supposition

* Neu aufgefundenene Abbildung des Dronte und eines zweiten kurzflügeligen Vogels, wahrscheinlich des *Poule rouge au bec de Bécasse* der Maskarenen in der Privatbibliothek S. M. des verstorbenen Kaisers Franz. Erläutert von GEORG RITTER VON FRAUENFELD. Mit 4 Tafeln. Wien: 1868. Fol., pp. 17.

† Our friend Mr. J. W. Clark informs us that very recently he had the pleasure, thanks to Herr von Frauenfeld's kindness, of inspecting these interesting drawings, one of which he recognized as representing *Chiromys madagascariensis*, the Aye-Aye!

be true, that the uncouth original had been deported from its own verdant home and suffered all the inconveniences of a transit thence to Vienna. But the most remarkable peculiarities* it offers are the colour, which is almost entirely of a sooty-brown, and the comparatively long primaries, which are only somewhat lighter in hue than the other feathers. There is a very small remnant of a tail; and the whole appearance is that of a dishevelled and travel-stained bird. It only remains to say of this Dodo, of which an admirable plate is given, that the author thinks it was a female bird, and that from it was most likely derived the portion of the maxilla now in the museum at Prague, which was first made known by Mr. Sclater through Strickland (Ann. and Mag. N. H. 2nd ser. vi. pp. 290, 291) and was subsequently described and figured by Dr. Reuss (Denkschr. k.-k. Akad. Wiss. Wien, x. p. 71).

We pass on to the next figure, wherein is depicted a very singular-looking bird. Great credit, we think, is due to Herr von Frauenfeld for the acumen with which he has recognized in the subject the "Poule rouge à bec de Bécasse" of Cauche, the "Velt-hoender" of Corneliszoon, and the "Hen" of Herbert. It is of a dusky rust-colour, has a somewhat long, curved and trenchant bill, stout serviceable-looking legs, on which it stands firmly planted; but its wings are evidently of no use for flying, and it is apparently destitute of a tail. This remarkable bird the author considers to belong to a new genus, which he calls *Aphanapteryx*, and designates the species *A. imperialis*. He also considers it possible that one of the figures in the well-known Dodo-picture in the British Museum may be intended to represent it. But hereupon we have something further to say. Among the bones of birds recovered from the Mare aux Songes, in Mauritius, along with those of *Didus ineptus*, by Mr. Edward Newton, was an imperfect under mandible, which he was unable to refer to any known species or genus. He submitted

* It may also be noticed that the inside of the mouth is coloured red, as it is also in a picture, by Pierre Withoos, supposed to represent the Didine bird of Bourbon, which has lately been copied in *fac-simile* for the Transactions of the Zoological Society of London (vol. vi. pp. 373-376. pl. 62).

it with the rest of his collection to M. Alphonse Milne-Edwards* ; and in a letter which we have lately received from that gentleman he kindly informs us that he has no doubt as to the specimen in question and also a leg-bone belonging to the bird now named by Herr von Frauenfeld as above, but which in M. Milne-Edwards's opinion will have to bear the appellation of *Aphanapteryx bræckii* (Schleg.), as being the same species as that on which Prof. Schlegel (Versl. en Meded. K. Akad. Amsterd. ii. 1854, p. 356) founded his *Didus bræckii* ; and we believe it will not be long before the determination of it as an aberrant form of *Rallidæ* is published. It can hardly fail to be gratifying to Herr von Frauenfeld to find his acute suggestion thus confirmed ; and in concluding our imperfect notice of this most interesting work we must not omit to say that to it is appended a very full list of papers connected with Dodo-literature which have appeared since that given by Strickland.

4. ITALIAN.

Dr. Salvadori has most kindly forwarded us a copy of a paper communicated by him a few months since to the Royal Academy of Sciences of Turin, wherein are described eight, or perhaps nine, new species of birds collected by the Marchese Giacomo Doria and Signor Beccari in Borneo. These are *Picus (Bæopipo) aurantiiventris*, *Hemicercus brookianus*, *Pitta bertæ*, *Brachypteryx macroptera* (which, says the author, may be *Turdirostris umbratilis*, Bp.), *Alcippe cinereocapilla*, *A. pectoralis*, *Calamodyta doriæ*, *Volvocivora borneensis* and *Cyornis beccariana*. These are all diagnosed from their nearest allies, apparently with great care. Borneo is a large island, and we should like to know from what part of it the new birds were obtained ; but nothing is said as to their precise localities.

* From this collection M. Alphonse Milne-Edwards has already described two extinct and previously unrecognized species—one, *Psittacus rodericanus*, from the caves of Rodriguez (Comptes Rendus, lxx. pp. 1121-1125, and Ann. Sc. Nat. 5^e sér. viii. pp. 144-156, pls. 7, 8), and the other a large Coot, from Mauritius, which he has called *Fulica newtoni* (op. proximè cit. pp. 194-220, pls. 10-13). Other discoveries are expected to follow.

5. AMERICAN.

All the ornithological papers of Dr. Coues on which we had hitherto set our eyes had been composed with such elaborate care, that when we heard of his "Monograph of the *Alcidae*" we fully expected to find the subject treated in the same so-called "exhaustive" manner. It was therefore not without great regret that, on examination of this his last Essay, we found it showing evident marks of haste and consequently incompleteness. The author does us the honour (for honour it is *laudari a laudato*) to speak highly of a certain article which formerly appeared in this Journal, and accordingly we feel all the more vexed that we cannot as fully return the compliment on the present occasion. Dr. Coues will, however, bear in mind, we trust, that it is the very excellence of his former labours which has led us to expect more from him than we should from an ordinary writer. He has hitherto set such an admirable example of diligence, perspicuity and accuracy, that we now feel the falling off of these qualities the more. He divides the family *Alcidae* into the three subfamilies *Alcinae*, *Phaleridinae*, and *Urinae* (lege *Urinae*), containing altogether thirteen genera, of which, on the principle, we suppose, of *c'est les extrêmes qui s'attouchent*, *Alca* stands first and *Lomvia* last. It has long been a question what the type of the genus *Alca* was; and our author declares in favour of *A. impennis*, for some recondite reason which we are not able to appreciate. A little investigation will show that Linnæus in naming his genus *Alca* merely Latinized the word "Alk," which is common to most northern tongues, his own among them, and is invariably applied, as of course he was well aware, to *A. torda*. On the principle which Mr. Gurney has lately promulgated in these pages (*suprà* p. 259), a principle which we maintain to be a sound one, it is therefore clear to us that whatever species are to be excluded from the genus *Alca*, *A. torda* must be retained in it, as the one to which the name is especially applicable. What other changes in nomenclature may thus be rendered necessary must be determined by those who are of opinion that the two species we have mentioned cannot be kept harmoniously in the same genus. But how comes it that the suggested name *Gyrvalca* has been over-

looked by Dr. Coues? Is it possible that he has not read that masterly monograph of Prof. Steenstrup which has now been translated both into French and German*? We fear this is the case, as we do not find even an allusion to it. But to return to nomenclatural difficulties, in which this family is scarcely surpassed by any. Dr. Coues restricts *Uria* to the group containing *Colymbus grylle*, Linn., and its allied species, and places the group containing *C. troile*, Linn., in the genus *Lomvia* of Brandt. In the first part of this arrangement he is possibly right; but in the last we suspect he is not. Dr. Malmgren considers (J. f. O. 1865, p. 394) he is justified in referring the birds we commonly know as "Scouts" "Willocks" or "Guillemots" (*pur sang*) to *Alca*; and we think it would puzzle any one to bring forward any valid argument against this association, except that it is an innovation. Dr. Coues draws up antithetically the different structural characters of *Uria* and *Lomvia*; and, by whatever names we speak of these groups, we do not hesitate to say he is quite right in separating them. It seems to us, however, that in defining the species belonging to the former he has not been quite so happy. An attempt in this Journal (*Ibis*, 1865, p. 519) to diagnose four species has escaped his notice; and in refusing to recognize *Uria mandti*, he asserts that it has "been extensively quoted as a synonym of, or employed to designate, *U. columba*," which we humbly think is an error. Certainly neither Brandt (Bull. Sc. Acad. St. Pétersb. 1837, p. 346) nor Bonaparte (*Comptes Rendus*, 1856, p. 774), on whom he chiefly relies, supports his statement. The former makes no mention whatever of *U. columba*, but, giving no *habitat* for it, includes *U. mandti* on Lichtenstein's authority as a good species. Now Lichtenstein (*Verz. Doubl.* p. 88) refers to Mandt's "*Dissertatio de itinere Grœnlandico*" whence we may fairly conclude, though we have never seen the work, that this last species comes from Greenland, where *U. columba*, admittedly, is not found. Bonaparte on the other hand quotes *U. columba* as a synonym of *U. grylle*, while he also recognizes *U. mandti* as distinct. How, then, can our friend assert, as he does, that this last "name as

* Cf. *Ibis*, 1865, p. 228, and 1868, p. 342.

used by Brandt, Bonaparte, and some others refers unmistakeably to *columba*”?*

Dr. Coues allows the so-called “Ringed Guillemot” to remain as a distinct species, though he states that in his opinion it rests only on a character which is probably an individual peculiarity—we should be inclined to go further and say unhesitatingly that it was so. He describes one new species, *Simorhynchus cassini*, which, like all others of the genus, is from the North Pacific, though very little seems to be known of the precise range of each in those waters. Finally, we must once more say that if we cannot speak so highly as we could have wished of this “Monograph,” it is because we are comparing it with its author’s own works.

Dr. Coues has also another paper in the Philadelphia ‘Proceedings’ to be noticed. This is a “List of Birds collected in Southern Arizona by Dr. E. Palmer,” and, while adding four species to those previously known, chiefly through the author’s exertions (*cf.* Ibis, 1867, pp. 130, 131), from the Territory, is also valuable in clearly indicating some differences between the avifauna of the southern desert and northern mountainous portions of the district. The species belonging chiefly to these two portions have their names typographically distinguished; and the paper is a valuable though unpretending contribution to the knowledge of the geographical distribution of North-American birds.

A paper published by Mr. Lawrence in the same Journal towards the end of last year has hitherto been neglected by us.

* It is a pity that Dr. Coues has not named the other authors who do this. So far as we know, Mr. Cassin is the only recent writer to whom the remark applies; but even he (Baird’s B. N. Am. p. 912) does so with doubt. Prof. Schlegel (Mus. P. B., *Urinatores*, pp. 17, 18) of course treats both *U. columba* and *U. mandti* as identical with *U. grylle*. Prof. Reichenbach’s figure (Vollst. Naturg. Schwimmv. pl. 4) mentioned by Dr. Coues we have not seen, but we imagine it would afford but slender evidence either way. Mr. Gray (Gen. B. iii. p. 645) unites *columba* with *grylle* and considers *mandti* distinct.

Herein are described five new species of Central-American birds. Two of them are *Trochilidae* from Costa Rica:—*Glaucis æneus*, very closely allied to *G. affinis*, Lawr., a species common in Panama and New Granada; and *Eupherusa nigriventris*, apparently a very distinct form, having a black breast. *Thaumantias lucie* is another member of the same family, but from Honduras, and said to be allied to *T. linnaei*. The fourth bird described as new is *Dromococcyx ruficularis*, which Mr. Salvin tells us he has little doubt is only the young of *D. phasianellus* (Max.) (*D. mexicanus*, Bp.), a species which certainly does occur in the same country (cf. *Ibis*, 1859, p. 133). The last is *Aramides albiventris*, and is the Central-American race of the wide-ranging *A. cayanaensis*, which it very closely resembles, but from which it differs in the characters pointed out by Mr. Lawrence. It is the common and indeed the only species of the genus found in Guatemala.

XXXVII.—Letters, Announcements, &c.

MR. P. L. SCLATER has kindly put into our hands for publication the following letter:—

H.M.S. 'Nassau,' Ancud, Chiloe,
May 26th, 1868.

MY DEAR SIR,—I have to thank you for your letter of 16th March, which I had the pleasure of receiving a few days ago. I am very glad to hear that my letters have interested you, and that you and Mr. Salvin have written an article for 'The Ibis' on the birds I sent home last year*, and I am much obliged for your hints as to zoological points to be attended to. I will act upon them, as far as my opportunities will permit, during next season, which I think will probably be my last in the Magellanic province. I fear, however, that I may not be able to gain much precise information as to the *Otariæ*, as they will not be easy to procure, and it is next to impossible to make a thoroughly careful examination of such large animals in the very confined space at my disposal in this vessel, as almost the entire room for

* [*Vide antea*, pp. 183-189.—ED.]

specimens which I can depend on is limited to my cabin; and you know six feet square will only allow of a very limited amount of stowage. But you may rely upon it that all that I can do I will do.

Your letter was peculiarly welcome, as giving me the first information that Professors Newton and Huxley had received the specimens sent to them. Probably they may have written to me; but I have been so unfortunate as to lose (I trust only temporarily) two mails from England, *i. e.* those despatched on the 17th of last November and December. You can imagine that such mishaps, though not uncommon, are rather unpleasant, as letters become very valuable in the isolated position in which I am at present placed. I shall be anxious to learn what is thought of the Fuegian and Patagonian crania, and in what condition the birds' skins arrived, and whether there are any rarities among them. They were not all in such good condition as I could have wished; but you know there is a certain class of difficulties connected with the preservation of specimens on board ship that one is comparatively free from on shore, and, as I was occupied in the collection of plants, insects, marine animals, &c., as well as ornithological specimens, I could not do the latter as much justice as if they had been my sole object. I am sorry I have not got the 'Zoology of the "Beagle"' with me, as it would have been an excellent guide to the animals, as Dr. Hooker's 'Flora Antarctica' has been an invaluable one to the plants of Fuegia. We have now finished our second season of work down south, and before long, if all is well, shall be at Valparaiso for the winter months; and thence I shall despatch the collections I have made this season, which, I regret to say, are considerably more limited than those I sent home last year. This is peculiarly the case with the animals, and has arisen from our having spent a considerable portion of our time in a region the fauna of which is poor beyond measure, and has disappointed me a good deal. We entered the Strait of Magellan on the afternoon of the 17th of last November, on which day I had my first sight of *Chionis alba*. Several individuals of this species flew about in the neighbourhood of the ship, and were naturally enough mistaken by the uninitiated for Pigeons. At the same

time I saw a fine herd of Sea-Lions reposing on the shelving beach at Dungeness Spit. While at Sandy Point, where we spent some time shortly after, I procured specimens of the eggs of a Swan, the Steamer-Duck, the Upland-Goose, the Bandueria (*Theristicus melanops*), and one or two species of Gulls, all of which had been brought from Elizabeth Island, where many birds breed during the months of October and November. A shooting party, which spent nearly a week at the island while the ship continued at Sandy Point, were very successful, bringing on board on their return upwards of 180 of the Upland-Geese, and three Swans. Two of these were *Cygnus nigricollis* and the third a considerably smaller species, which corresponds with King's description of his *C. anatoides* in the Appendix on Birds in the first volume of the 'Voyages of the "Adventure" and "Beagle."' This latter bird I likewise met with at the Gallegas River, which we visited later in the season to look for a deposit of tertiary mammalian bones. I find that neither in it nor in *C. nigricollis* is the keel of the sternum at all excavated for the reception of a fold of the trachea. At Cape Negro, where we spent a few days at the end of November, I obtained a fine member of the *Falconidæ*, large enough to merit the title of an Eagle, as well as one of the black Starlings, which I find extend from the Cape westward through the Strait and along the west side of Patagonia to Chiloe; also a curious little rodent with very thick hair. A few days later (December 4th) I visited the small island of Santa Magdalena. On approaching it in the ship it presented a very remarkable appearance, being white with birds in many places, and a large herd of Sea-Lions congregated on the beach. On coming still closer in the boat in which I landed, I found the water populous with the latter animals, which, from being never disturbed by man, were apparently much astonished and very little dismayed by our appearance. A large herd followed the boat at the distance of a few yards, raising themselves out of the water as high as their shoulders, staring fixedly at us, showing their large teeth, and occasionally emitting a cry between a grunt and a roar, while numbers of another Seal swam about in every direction, bending their bodies into a curve and leaping high out of the water. The herd of

Sea-Lions on the beach remained stationary till we landed and they were fired at, when they reared up and plunged along after their peculiar fashion till they reached the sea. The island rises pretty steeply from the water, and in some places displays high cliffs of boulder-clay, on the ledges of which numbers of Cormorants and Gulls of various species were assembled. On climbing one of the steep grassy banks, we witnessed a most amusing sight in the Penguins (*Spheniscus demersus*), which stood erect and looked stupidly at us and then shuffled off, their little wings hanging limp at their sides. When hard pressed they abandoned their erect posture, and, crouching down, scoured along the ground on their stomachs (on all-fours, if one may use the expression, as their wings seemed to be used equally with their legs as means of locomotion) till at last they reached their burrows, in which they ensconced themselves, and turning round, and moving their heads slowly from side to side with a most inquisitive expression of countenance, barked and brayed at their pursuers. They showed a very stout fight on one attempting to drag them out of their holes, biting most vigorously with their stout beaks. I succeeded in raking one out with the crook of a walking-stick, and despatched it; and I also procured a very young one, which, along with the heads of two rather older individuals, I have preserved in spirits, as I thought it might be interesting to examine the development of the cranial bones. I did not manage to find any eggs, the season being too far advanced. But perhaps the most striking sight on the island was furnished by the breeding-places of the Cormorants, of which there were several in large hollows on the summit of the island, in the neighbourhood of small patches of salt water. The birds were congregated on their nests literally in thousands, and when they were disturbed, after running along for a few paces after the fashion of a retreating army, rose into the air *en masse*, winnowing it with their wings so as to produce a sound like that of a strong breeze, and raising a thick cloud of dust. The nests were regularly shaped slightly conical mounds about nine inches high, formed of dried grass and other plants baked into a solid mass with earth and guano, and hollowed out into a shallow depression at the top. They were ranged in regular

series, with almost mathematical precision, about a foot of space intervening between each nest ; and the greater number of them contained eggs, varying from one to three. These, of which I shall send home specimens, were of a greenish-white colour, with a rough surface, and about the size of a hen's egg. I obtained a pretty good specimen of one of the birds. Numerous *Sterna* and other Gulls were flying about, giving vent to their discordant cries ; and I met with several of their nests. I also saw three specimens of *Chionis*, but did not get any on this occasion. I noticed that those Cormorants that were perched on ledges on the cliffs had nests constructed of sea-weed, and that none of these contained eggs ; so I suppose the cliffs are merely employed as resting-places.

I was on shore at Gregory Bay on the 12th of December. It was a bright sunny morning ; and as I walked over the ground tunnelled with the burrows of the *Ctenomys*, every now and then I heard the very peculiar cry of the animal, and had a momentary glance at a furry head and shoulders thrust out of a hole for an instant. I noticed several specimens of the largest of the Owls I sent home last year perched on the Barberry-bushes, apparently on the look-out for prey ; and they were in general very bold, sitting still and barking at me till I came within six or seven yards, and then flying off to a short distance. I also observed several Geese with their goslings ; and on one occasion the parent birds ran off, dragging their wings as if hurt, and hid themselves in the long grass, amongst which I could see their heads thrust up at intervals watching my progress. One of the officers who was on shore was fortunate enough to shoot a beautiful Duck, different from any of those I sent home last year ; and one or two examples of the Spur-winged Lapwing (*Vanellus cayanus*) were obtained, also a curious little bird coloured like a Quail or Sand-grouse (I think a *Thinocorus*). After this I had very few opportunities of getting on shore for a long time, as we had almost constantly windy weather, and were lying far out from the shore. On the 22nd we went up the Patagonian shore to the Gallegas River, and I spent a day and night on shore there, but, with the exception of the Swan I have already mentioned, did not obtain anything of any im-

portance. A *Rhea* and a Guanaco were shot, which afforded us a stock of fresh provisions; and a Puma was seen but not shot. The only night I spent there was rather an eventful one to me; for I spent it alone on the plains, having lost my way in a solitary ramble in search of plants, and not being able to find my way back to camp until the following day.

We went over to the Falkland Islands in the middle of January, and remained in Stanley Harbour till the 28th of the month, when we began our return voyage to the Strait. On the way back we passed through Falkland Sound, and spent a day and a half at the Tyssen Islands. The Tussac-grass (*Dactylis cespitosa*), which is rapidly disappearing from the East Falkland Island, flourishes here in great abundance, and the Jackass-Penguin makes its burrows in the base of the clumps. I landed on one of the islands and was greatly impressed by the extraordinary tameness of the birds. A little brownish-black bird was very plentiful, hopping about in the paths between the clumps of grass, more familiar than an English Robin; and the Military Starling was hardly less tame. The Skua Gulls, of which there were numbers, flew about me uttering scolding cries, and several times I was obliged to make them keep their distance by striking at them with my stick. The Upland-Geese allowed our sportsmen to get within a few yards of them, and a Goose and Gander ran along before me for some distance at a leisurely pace; while the common Brown Duck of the Strait, a specimen of which I sent home last year, swam in flocks close to the shore, and the numerous Kelp-Geese did not appear at all disturbed by our presence. A Bittern with a crest of three narrow white feathers was also shot and preserved. We spent the 31st of January at Fox Bay, in the West Falkland; and here the birds were equally tame. It is a curious fact which I cannot well account for, that several species of birds common to the Falklands and the Straits of Magellan are much tamer at the former than at the latter locality. Thus, in addition to the birds I have mentioned, I may remark that the Steamer-Duck, which, though plentiful in the Strait, is difficult of approach on account of its wariness, swims about in Stanley Harbour in the most unconcerned manner, seldom taking the trouble to get up steam.

On our return to the Straits we remained in the eastern part till the 9th of March, when we left Sandy Point for the season, and proceeded first westwards through the Straits, and then north through the channels leading up from the western part of the Straits of Magellan to the Gulf of Peñas, than which it is hardly possible to conceive regions more destitute of animal life, many portions in their utter dreariness an embodiment of the valley of the shadow of death—no living creature to be seen, the land rising high and black on either side, and rain coming down in torrents and as if it would never cease. The northern channels are rather more life-like, and there are evidences in their fauna and flora of an approximation to that of the Chonos archipelago and Chiloe. The Kingfisher, of which I sent home a specimen last year from Port Gallant, is rather plentiful; and a good many Cormorants, Steamer-Ducks, and Gulls are to be seen. Our object at this time was to reach Chiloe, there to provision and coal; and we emerged into the Gulf of Peñas on the evening of the 22nd of March, and very soon after encountered a heavy gale, which we seem to experience now wherever we go. The 27th was a beautifully calm day, and we enjoyed a most remarkable spectacle. The ship was hardly moving through the water, and flocks of Albatroses were peacefully resting on the water in its immediate vicinity. At one time about twenty were close astern, growling hoarsely occasionally as they fought over the garbage which was from time to time thrown out. Several were taken on baited hooks, their radii being in request with smokers as pipe-stems. They had been feeding on Cuttle-fish of the genus *Loligo* or *Ommastreptes*. The largest caught measured 10 feet 9 inches in expanse of wing. In skinning one specimen, when removing the integument from the abdomen and legs, I found on either side a superficial muscle, which seems to act as a tensor of the aponeurosis of the muscles below the knee. Though I have now skinned and partially dissected a considerable number of birds, I do not remember noticing it before; and there is no mention of it in Prof. Owen's 'Anatomy of Vertebrates.' It arises from the cartilage at the tip of the pubis, and from a deep-seated muscle arising from the pubis by an aponeurosis about three-fourths

of an inch broad and rather more than an inch long, and, proceeding upwards and outwards, forms a thin fan-shaped muscular hand, which by degrees assumes a membranaceous character and, spreading out, is attached to the aponeurosis enveloping the muscles of the front and outer side of the leg, extending from the knee-joint about a couple of inches downwards. My friend Dr. Campbell, who examined another Albatros at my request, found the same muscle. I send you an accurate though rough sketch of it, in case you can give me any information about it. I got some large *Anoplura* on the feathers of the bird, and have preserved them. Noticing some beautiful *Acalephæ* in the water, I had a towing-net put over, but was obliged to have it hauled in almost immediately, as the Albatroses pounced upon it and nearly tore it to pieces.

We entered the Bay of Ancud on the forenoon of the 28th; and I landed in the afternoon (which, for a rarity, was a fine one), and was much delighted with the semitropical character of the vegetation—a large bamboo-like grass forming a conspicuous feature, and *Bromeliaceæ* being rather plentiful. We remained at Ancud rather more than ten days, getting two or three very fine ones, which allowed us to have some pleasant walks and some wonderful views of the peak of Osorno and the distant Cordillera. Humming-birds were very plentiful; but I think all belonging to one species, which extends from Port Famine westward throughout the Strait and through the entire range of the Channels. They looked exceedingly beautiful flying about the flowers of the fuchsias, which were in full glory during our visit, their heads gleaming with burnished gold in the sunshine. A little greyish bird with a white line on each side of the head was common on the rocks on the beach; it is also abundant at Sandy Point and throughout the western part of the Strait and the Channels. In its movements it resembles a Wagtail. I often heard the cries of the Cheucan and Barking-bird; but they were very difficult to see. The Gallinazo Vulture was very plentiful, and so were several of the Strait Hawks. A *Numenius*, which I think is our *N. phæopus**, is common but shy. The Steamer-Duck is to be seen, but not very plentifully; and Cor-

* [Probably *N. hudsonicus* or *N. borealis* (cf. P.Z.S. 1867, p. 333).—P. L. S.]

morants and three species of Grebe occur. Two of the latter are small, and I have got specimens of them; the other, which is much larger, and which I have seen at the eastern entrance of the Strait, I have not obtained. I saw two or three specimens of *Rhynchops* flying along the surface of the water, ploughing it with the under mandible; and the Strait Kingfisher was common. A grey Bittern, the same as one of which I subsequently got a specimen in the Messier Channel, was rather numerous; and a small white Heron or Egret, which I afterwards got at Port Otway, likewise was occasionally seen. The marine zoology is rather rich apparently, for I got a considerable number of Mollusks, Crustaceans, and Annelids. That curious fish the *Callo-rhynchus* appears to be rather common, as, though I have only got one small specimen of it, I frequently saw its curious horny egg lying on the sandy beaches. On our way back to the Channel we spent part of a day at Port Otway (Cape Tres Montes). Two Sea-Otters, the white Egret I have mentioned, and some Kelp-Geese were shot there. We re-entered the Messier Channel on the 17th of April, and there remained at one or other of the harbours till the 13th of this month, encountering a great amount of rainy weather. At Halt Bay, one of our anchorages, I got a *Pteroptochus* and a little Grebe which seems to be rather common throughout the Channels and at Chiloe. We saw a good many Sea-Otters and several Seals, but did not succeed in getting any; and I saw the tracks of Deer in one or two places, but never got a sight of the animals themselves. I also procured a Gallinazo*, which appears to be a rare bird in the Channels, but little else besides. The weather became so hopelessly bad (tremendous and continual rain) that we left the Channel on the 13th on our northward route. On the 16th we reached Port San Pedro, at the southern extremity of Chiloe, and on the 18th Huite, a beautiful little harbour, thirty or forty miles distant from Ancud. Here we remained a couple of days to cut wood, our coal having run short, so that I had an opportunity of landing and collecting what fell in my

* Apparently a different species from the one common at Chiloe, as the naked head is red instead of black, and the plumage is not so dark. [No doubt *Cathartes aura*.—P. L. S.]

way. One day the wooding-party brought me off a specimen of *Didelphys elegans*, which had been caught in the fork of a tree which was cut down. I ascertained it to be this species by Schinz's 'Synopsis Mammalium;' and he gives the neighbourhood of Valparaiso as its habitat; so I was much interested by its occurrence so much further south and in this rainy climate. Has it ever been procured so far south before? We reached Ancud on the 22nd, and have been there since. The weather has been fearful, rain in torrents; but we hope to leave for Valparaiso, whence I shall despatch this letter, in the course of four or five days. Mr. Darwin truly remarks that the climate of Chiloe is detestable; and that of the Channels between the Strait and the Gulf of Peñas is a good deal worse. To give you an idea of the amount of rain we have had since we left Sandy Point on the 9th of March, I may mention that since then the deck of the ship has not been dry for seven days; and it rains so tremendously that the whole ship's company might be supplied with water two or three times over in the course of a single day. These statements, strange though they may appear, are literally accurate.

To return to your letter, I am sorry to state that I have not met with any species of *Fulica* at all as yet. I hope to be at Port Famine for some little time next season, however, and be more successful there.

And now I shall conclude hoping that I have not utterly exhausted your patience by the length of this letter.

Believe me, very truly yours,

ROBERT O. CUNNINGHAM.

The following letters, addressed "To the Editor of 'The Ibis,'" have been received:—

SIR,—I obtained three specimens of a Flamingo last week which differ so much from *Phænicopterus roseus* that I have no doubt that they are a different species.

These birds were shot fifty miles from here a few days ago by Lieut. Feilden of the 21st Fusileers, who last year noticed a flock of the same species on the same water, but was unable to shoot a specimen. This year there were about fifty *P. roseus*, and a flock of eight of the species I now describe, on the lake,

easily distinguished by their much smaller stature and brighter plumage. Lieut. Feilden procured three of these birds (adults) and two of *P. roseus*. Dr. Jerdon (B. Ind. iii. pp. 775, 776) is inclined to believe in the existence of another species of Flamingo in India, under the name of *P. minor*; but if this is intended for the bird I now describe, it seems to be an inappropriate name, as, apart from the variation in size, it has other more characteristic differences, as will be seen by the following description:—

Throughout of a bright pink colour; wing-coverts, tertials, upper tail-coverts, and under the wing dark red-pink; breast mottled with the same. Chin covered with feathers to the base of the lower mandible, and no bare spot between the lower mandible and the neck as in *P. roseus*; the feathers bordering the eye and base of bill scarlet. Bill claret-colour at base, shading off to lake towards the tip, which is black; irides a fine ring of golden-yellow, surrounded by an outer ring of orange-scarlet; tarsus, legs, and feet blood-red. Length 35 inches, wing 13·5, bill 3·125, tarsus 8, middle toe 3.

The great points of difference between this and *P. roseus* would strike the most casual observer, and are—the whole colour a uniform bright pink, instead of rosy-white, and the intense brightness of the wing-coverts, upper tail-coverts, and under the wing, the complete difference in the coloration of the irides, legs, tarsus, and feet, the absence of a bare chin-spot, and the size, which distinguishes this species from *P. roseus* at the distance of a mile.

Taking all these circumstances into consideration, I think that this will be admitted as a different species from *P. minor* or *P. blythi*, which both Dr. Jerdon and Mr. Blyth regard as varieties of *P. roseus*; if so, I would claim for this bird the name of *P. RUBIDUS*, in contradistinction to its paler congener.

H. W. FEILDEN, 18th Hussars.

Secunderabad, 10th July, 1868.

. Mr. Blyth, to whom we have shown Capt. Feilden's letter above printed, kindly informs us that he has no doubt but the Flamingo therein described is of an entirely new species, of which he has never seen an example.—ED.

22nd July, 1868.

SIR,—I observe that Lord Walden, in describing the birds I

procured in the Tenasserim Provinces, and speaking of the forms of *Buchanga*, says (P. Z. S. 1866, p. 547) "that the Himalayan race of *B. longicaudata* has yet to be described and named." As I happen to have obtained specimens of this bird in the Darjeeling Hills in 1862, and also near Simla in 1866, I beg leave to forward you the following notes.

Herr A. von Pelzeln (J. f. O. 1868, p. 33) [*cf. anteà*, p. 316] mentions it under the name of *Dicruratus longicaudus*; but as I believe it to be a distinct species, I wish to propose for it that of

BUCHANGA WALDENI, sp. nov.

The dimensions of two specimens procured by me near Simla are as follows:—

	Length.	Wing.	Tail.	Bill from front.	Bill from gape.	Tarsus.	Extent.
2 June..	11·75	5·5	6·625	·9375	..	·6875	15·5
18 June..	10·5	5·25	5·375	·9375	1·125	·75	13·75

neither bird coming up to the size of *B. longicaudata* as given by Dr. Jerdon (B. Ind. i. p. 431). The irides were crimson-red. The under wing- and under tail-coverts are tipped with white; but the general colour of the bird is a dark blue-black, similar to that of most other members of this well-known genus. The species frequents the tall pines and other forest-trees bordering the small patches of cleared land in the north-western Himalaya; and from a station of this kind it now and then darts out over the open space and, after catching its prey, returns to its lofty perch until tempted by another passing insect.

Yours, &c., R. C. BEAVAN.

. Is not this most likely the same species as that recently mentioned by Col. Tytler (*anteà*, p. 200) under the name of *Dicrurus himalayanus*?—ED.

Royal Zoological Museum, Turin,
July 31st, 1868.

SIR,—The 'Magenta' arrived safely at Naples on the 28th March last, after an absence of two years and a half, during which time she successfully performed her various missions. I immediately asked to be attached to this place, where all the collections made during our voyage are accumulated. They

are pretty large considering the want of means and the many difficulties encountered in getting them together. Of course the most favoured part has been our own favourite science of ornithology; and although most of the localities at which the 'Magenta' touched have been pretty well scoured, yet I have succeeded in scraping together some rarities and a few novelties. Dr. Salvadori and I have been working at them since the beginning of June. The worst part is the synonymy, which we are doing our best to make exact and to give in full, being aware of its importance after the labours of so many species-manufacturing ornithologists. On the whole I believe we have got together as many species as Mr. von Pelzeln gives from the expedition of the 'Novara,' if not more. On the death of poor De Filippi at Hongkong, I took his place as head of the scientific mission, and kept all the collections on board with me, thus saving the enormous expense of sending them to Europe by mail-steamers.

At Java I got some good species, and in Australia also. Amongst the last I secured was a specimen of *Nasiterna pusio*, Scat. (P. Z. S. 1865, p. 620), which Mr. Krefft kindly gave me. It now forms one of the gems of the Turin Ornithological Gallery. At Santiago de Chile, Messrs. Philippi and Landbeck presented me with a nearly complete series of Chilian birds, a most characteristic and interesting group. The 'Magenta' was above a month in the channels which extend along the west coast of Patagonia from Cape Tres Montes to the Straits of Magellan, and I was able to form a choice collection. The most remarkable features of that avifauna are the beautiful *Chloephagæ* and the strange *Micropterus cinereus*. On our voyage from Montevideo to Gibraltar we were becalmed near Trinidad Island, and I there collected some very interesting *Procellaria**.

The Italian Government intends to publish the voyage of the 'Magenta;' and I have been charged, conjointly with our Captain, with the task of writing it. I mean, of course, the descriptive part; the scientific part (mostly zoological) can only be done in monographs, and will be the work of different naturalists. I

* [Dr. Giglioli has since forwarded us descriptions (drawn up by Dr. Salvadori and himself) of several new species of this family, which we hope to publish in our next number.—ED.]

shall undertake the mammals and the pelagic fauna and, jointly with Dr. Salvadori, the birds. These last will be the first out.

I am, &c., HENRY HILLYER GIGLIOLI.

Museum of Natural History,
Paris, 5 August, 1868.

SIR,—I have just ascertained that the interesting little bird lately referred with some doubt to the genus *Drymæca*, and described by Mr. Swinhoe (*anteà*, p. 62) under the name of *D. pekinensis*, should have another position. Our museum possesses four examples of it; and on comparing them with the Australian genus *Amytis*, it is impossible not to place them in it, although their tarsi are shorter than in that. The form of the bill, the operculated nostrils, the short wings, the long graduated tail, and, finally, the long bristles at the base of the bill, as well as the texture of the plumage, are sufficient to indicate the place of the species in the series. If Mr. Swinhoe had had under his eyes an *Amytis*, he certainly would not have assigned this bird to *Drymæca*. Our four examples come from the neighbourhood of Pekin, and were sent to us, the first in 1865, by the Père Armand David, and the others this year. As is elsewhere the case in this genus, there is no difference between the sexes of *Amytis pekinensis*.

If you can find a small space in 'The Ibis' for this observation, be good enough to bring it to the notice of ornithologists, and receive, &c.

J. P. VERREAUX.

Public Library of the University of Cambridge,
August 1868.

SIR,—Understanding that a knowledge of the precise dates at which the various *Livraisons* of Temminck and Laugier's 'Nouveau Recueil de Planches coloriées d'Oiseaux' appeared would be of interest to ornithologists, as affording them the means of settling various disputed questions of priority of nomenclature, I have been induced to draw up the following list, which will answer that purpose, and may be the more acceptable since it shows that there was much irregularity in the publication of the work.

The dates of *Livraisons* 1 to 92 are extracted from the 'Bibliographie Française,' which consists of weekly official lists of books published in France. After the 92nd *Livraison* no further notice is taken of the work until the appearance of *Livraison* 102; but the intermediate portions are cited in several contemporaneous publications, so that their dates can be obtained with tolerable accuracy. *Livraison* 101 is dated August 30, 1836, and concludes the descriptive part, *Livraison* 102 containing only the titles and indexes.

TEMMINCK, C. J., et LAUGIER, M.—*Nouveau Recueil de Planches coloriées d'Oiseaux*. *Livraisons* 1–102. 4to. Paris: 1820–39.

Livrai- son.	Date of Publication.	Livrai- son.	Date of Publication.	Livrai- son.	Date of Publication.
1	7 Oct. 1820	36	2 Aug. 1823	71	28 Feb. 1827
2	18 Dec. 1824	37	30 Aug. "	72	25 Apr. "
3		38	27 Sept. "	73	30 July "
4		39	25 Oct. "	74	22 Sept. "
5		40	6 Dec. "	75	5 Jan. 1828
6	26 July 1823	41	27 Dec. "	76	1 Mar. "
7		42	26 Feb. 1825	77	23 Apr. "
8		43	28 Feb. 1824	78	5 July "
9		44	27 Mar. "	79	1 Aug. 1829
10	30 Aug. 1823	45	1 May "	80	5 Sept. "
11		46	22 May "	81	17 Oct. "
12		47	26 June "	82	2 Jan. 1830
13		48	31 July "	83	20 Feb. "
14	28 Feb. 1824	49	28 Aug. "	84	8 May "
15		50	2 Oct. "	85	3 July "
16		51	23 Oct. "	86	4 Sept. "
17		52	27 Nov. "	87	22 Jan. 1831
18	26 June "	53	18 Dec. "	88	14 May "
19		54	12 Feb. 1825	89	4 Feb. 1832
20		55	26 Feb. "	90	28 July "
21		56	16 Apr. "	91	29 Dec. "
22	2 Aug. 1823	57	23 Apr. "	92	22 July 1834
23		58	21 May "	93	1835
24		59	25 June "	94	
25		60	23 July "	95	
26	26 July 1823	61	27 Aug. "	96	
27		62	24 Sept. "	97	1836
28		63	12 Nov. "	98	
29		64	21 Dec. "	99	
30		65	27 May 1826	100	
31		66	10 June "	101	29 Jan. 1839
32		67	12 July "	102	
33		68	16 Sept. "		
34		69	25 Oct. "		
35		70	27 Dec. "		

I am, &c., G. R. CROTCH.

Crotch died the last of June
1874, at Philadelphia, Pa.

SIR,—I beg leave to offer the following notes to the readers of 'The Ibis':—

Ornithologists appear to have overlooked the fact that the Cat-bird of New Holland, commonly called by the specific name adopted in 1827 by Vigors and Horsfield (Trans. Linn. Soc. xv. p. 264), from Latham's MSS., had been long previously described by Paykull in the 'Nova Acta Societatis Scientiarum Upsaliensis' for 1815 (vol. vii. p. 282), under the designation of *Lanius crassirostris*. On referring to Paykull's excellent description and figure, no one can doubt the identity of the two birds. The species, therefore, supposing it to be entitled to generic separation, should stand as *Ælurædus** *crassirostris* (Payk.), and not *Æ. smithi* (V. & H.). Its other synonyms have been given by Mr. Gould (Handb. B. Austral. i. p. 446).

In 'The Ibis' for 1861 (p. 120), I have stated that Mr. E. L. Layard obtained living examples of the Vulturine Guinea-fowl (*Numida vulturina*) in Bojana Bay, in Madagascar. Having subsequently ascertained that the true *patria* of this species is the district of Lamoo, on the east coast of Africa, between 2° and 3° S. lat. (cf. P. Z. S. 1863, p. 126, 1865, p. 677, and 1867, p. 953), I came to the conclusion that Mr. Layard must have made an error. But it would appear from the following passage in a volume of travels, to which Dr. Peters has called my attention, that a second species of *Numida* is found in Madagascar, which Mr. Layard may have mistaken for *N. vulturina*. Captain W. F. W. Owen, in his 'Narrative of a Voyage to explore the Shores of Africa, Arabia, and Madagascar' (London: 1833, vol. ii. p. 36), states that when he arrived at the north-east coast of Madagascar and Diego Suarez Bay, or British Sound, the chief and all the inhabitants came in state to visit him, "bringing with them a species of Guinea-fowl with a long tail, which we had never before met with. It was marked like the Jungle-fowl of India, or the Argus Pheasant, but its downy plumage

* Dr. Cabanis (Mus. Hein. i. p. 213, note) writes the name incorrectly *Ailurædus*, since αἰλουρος becomes *ælurus* in Latin.

was still more beautiful, the bill and head being like the common Guinea-fowl."

The Spurwinged Goose from the Shiré River, lately mentioned by Captain Sperling (*anteà*, p. 292), reached the Zoological Gardens alive, and in good condition, on the 9th of April last, and turned out to be an example of the true *Plectropterus gambensis* (*cf.* P. Z. S. 1868, pp. 261, 262). The very distinct (*non obstante Schlegelio*!) *P. rueppelli* appears to be peculiar to the interior of East Africa. *P. gambensis* has bred this year in the Society's Gardens for the first time. The eggs are white when fresh, smooth and shining, more like those of a Shelldrake than of a Goose.

I am, &c.,

P. L. SCLATER.

11 Hanover Square, Sept. 2, 1868.

Through the good offices of our friend Mr. E. L. Layard, Mr. C. Fairbridge, of Capetown, has most kindly sent us a complete copy of the 'South African Journal,' the rarity of which we mentioned in our last number (*anteà*, p. 270), as well as of the 'Report' of Sir Andrew Smith's celebrated Expedition. We understand also that the same gentleman, with almost unexampled liberality, has presented another complete copy of the 'Journal' to the Zoological Society, which, as we before stated, possessed only an imperfect one. We are consequently able to add to our bibliographical notes on this periodical. "No. V." of the Original Series, though called that for "October 1831," bears 1832 as the date of publication on its wrapper. Its pagination begins at page 9 and extends to page 140. "No. 2, part 2," of the Second Series extends from pages 129 to 160, and it contains the descriptions of five new species of birds by Sir Andrew. But what very much increases the value of Mr. Fairbridge's handsome gift is the fact that all parts of this copy of the journal are still in their original wrappers, and thus we learn that the Second Series was "published in monthly parts," a piece of information which the work does not otherwise afford.

In further illustration of Sir Andrew Smith's labours upon

South-African zoology, Mr. J. H. Gurney has most obligingly submitted to our inspection a copy of "A Catalogue of the South-African Museum: now exhibiting in the Egyptian Hall, Piccadilly. The property of a Society entitled 'The Cape of Good Hope Association for Exploring Central Africa,'" which bears date "1837." This Catalogue contains the names of a good many species of birds which are apparently used for the first time; but no descriptions, fortunately, are appended to them. We have occasionally seen reference to this publication made in some ornithological works; but we never before met with it, and it must be simply regarded as a literary curiosity and not as throwing any light, at least so far as ornithology is concerned, on disputed points of nomenclature. Mr. Gurney's copy was obtained at Temminck's sale, and, as appears from a few lines written on the title, was sent to the Museum at Leyden in anticipation of the disposal of the collection, which was "advertized for sale on the 6th of June, 1838." Most of the important specimens were subsequently transferred to the British Museum.

A short time since, a friend of ours, who, though no naturalist, was aware of the store set upon old representations of the Dodo, was good enough to inform us that he had lately been making some literary researches in Holland, and had been shown a manuscript copy of an old journal kept during a voyage to Mauritius, which was illustrated by several drawings, apparently contemporary, of Dodos. We immediately communicated this intelligence, with all the additional particulars we could gather, to Professor Schlegel, who, in return, informs us that the book had been already brought to his notice, and that its pictorial contents are of great value, the figures of the Dodo and other birds having been most beautifully drawn from life by a man who knew well what he was about. We understand that the narrative has been printed before, but no account given of the figures with which it is embellished. However, Professor Schlegel tells us he is preparing a short memoir on the subject; we therefore have no desire to anticipate him by mentioning at present the

different points of interest furnished by this discovery, feeling sure that he will neglect none of them in telling the story his own way.

Our readers will be glad to hear that Mr. Walter Buller intends to bring out a work on the "Birds of New Zealand," for which he has long been making preparations. His 'Essay' on the ornithology of that colony, which we noticed some time ago (*Ibis*, 1867, pp. 132, 133), showed that considerable progress in the knowledge of its interesting avifauna had been made since Mr. G. R. Gray's 'List' appeared in the pages of this Journal (*Ibis*, 1862, pp. 214-252); and the recent labours of Herr Finsch and Dr. Haast (*J. f. O.* 1867, pp. 305-347; 1868, pp. 238-245) prove that the subject is not exhausted. Mr. Buller's work is to be published by Mr. Van Voorst, who will doubtless be happy to receive the names of intending subscribers.

While on this theme we may mention that, through the kindness of a correspondent, we have received a beautiful series of photographs of the skeletons of various species of *Dinornis*, taken by Mr. D. L. Mundy from specimens in the Museum at Christchurch, N. Z.; and we understand that copies may be obtained from Mr. Haskins, of No. 27 The Crescent, Darnley Road, Hackney.

We regret to find that nothing came of the laudable incubatory attempt on the part of *Apteryx mantelli* which we recorded a short while since (*anteà*, p. 251). We can only wish for better luck next time.

We have great pleasure in announcing the safe return of Mr. W. Jesse, whose appointment as zoologist to the Abyssinian Expedition we announced some months ago (*anteà*, p. 134). After the departure of the troops, Mr. Jesse set out on a journey into the interior of the Bogos country, where we hear he was very tolerably successful.

INDEX.

- Abroornis superciliaris*, 73.
 — *xanthoschistus*, 308.
Accentor alpinus, 439.
 — *altaicus*, 311.
 — *atrogularis*, 311.
 — *huttoni*, 311.
 — *modularis*, 439.
 — *rubeculoides*, 311.
 — *strophiatatus*, 311.
Accipiter æquatorialis, 10,
 20.
 — *approximans*, 12, 20.
 — *badius*, 222.
 — *brachydactylus*,
 144.
 — *brevipes*, 222.
 — *chilensis*, 188, 336.
 — *cirrhocephalus*, 11.
 — *cooperi*, 336, 427.
 — *cruentus*, 9, 12.
 — *erythrauchen*, 7, 8,
 20.
 — *fuscus*, 418.
 — *gabar*, 436.
 — *griseogularis*, 12.
 — *gularis*, 306.
 — *iogaster*, 8, 9, 20.
 — *lantzi*, 104.
 — *mexicanus*, 427.
 — *minullus*, 144.
 — *muelleri*, 9, 20.
 — *nisoides*, 306.
 — *nisus*, 306, 436.
 — *pileatus*, 336.
 — *poliocephalus*, 12, 20.
 — *polizonoides*, 144.
 — *rhodogaster*, 4, 7, 8,
 20, 216.
 — *rubricollis*, 7, 8, 20.
 — *sphenurus*, 144.
 — *stevensoni*, 216.
 — *sulaensis*, 10, 20.
 — *sylvestris*, 10, 20.
 — *tachiro*, 144.
 — *torquatus*, 10, 11, 20.
 — *trinotatus*, 8, 20.
 — *virgatus*, 4, 6, 20,
 195.
Aeredula caudata, 299.
Aeredula glaucogularis,
 299, 302.
 — *rosea*, 299, 300, 301.
 — *swinhoii*, 299, 302.
 — *tephronota*, 299, 302.
 — *trivirgata*, 299, 301.
Aeridotheres fuscus, 171.
 — *ginginianus*, 171.
 — *griseus*, 201.
 — *pagodarum*, 201.
 — *tristis*, 152, 201.
Aerocephalus australis,
 277.
Actitis hypoleucos, 327,
 395.
 — *ochropus*, 395.
Actiturus bartramius, 218.
Aedon galactodes, 441.
 — *paena*, 266.
Ægialitis cantianus, 323.
 — *euroniceus*, 389.
 — *falklandicus*, 188.
 — *hiaticula*, 255, 323.
 — *intermedius*, 255.
 — *mongolicus*, 133, 389.
 — *minor*, 323.
 — *minutus*, 389.
 — *philippensis*, 389.
 — *pyrrhorthorax*, 133,
 321, 389.
 — *vociferus*, 428.
Ægiothus linaria, 421.
Ægithaliscus anophrys,
 64, 250.
 — *erythrocephalus*, 64,
 82, 311.
Ælurædus crassirostris,
 501.
 — *smithi*, 501.
Æpyornis maximus, 65.
Æthyia americana, 426.
 — *nyroca*, 321.
 — *valisneria*, 426.
Agelæus phœniceus, 423.
Aglæactis caumatonota,
 115.
 — *olivaccocauda*, 115.
Agriornis maritima, 185.
 — *microptera*, 185.
Agrodroma sordida, 312.
Aix sponsa, 428.
Alauda arborea, 443.
 — *arvensis*, 443.
 — *brachydactyla*, 443.
 — *calandra*, 443.
 — *chuana*, 270.
 — *gulgula*, 78, 181, 319.
Alca impennis, 342, 457,
 483.
 — *torda*, 457, 483.
Alcedo bengalensis, 196.
 — *ispida*, 449.
Alcippe cinereocapilla,
 482.
 — *pectoralis*, 482.
Alcyon smyrnensis, 333.
Allotrius anobarbus, 316.
 — *xanthochlorus*, 316.
A'socomus hodgsoni, 320.
 — *puniceus*, 373.
Amadina castanotis, 233.
 — *lathamii*, 233.
Ammomanes phœniceus,
 179.
Ammoperdix bonhami,
 214, 334.
 — *heyi*, 214, 334.
Ampelioides flavitorques,
 222.
Ampelion cinctus, 222.
Ampelis cedrorum, 421.
Amydrus tristrami, 334.
Amytis pekinensis, 499.
Anæretes parulus, 185.
Anas acuta, 226, 328, 456.
 — *angustirostris*, 456.
 — *boscias*, 223, 328,
 364, 402, 425, 456.
 — *clypeata*, 456.
 — *consobrina*, 221.
 — *crecca*, 328, 456.
 — *falcata*, 104.
 — *flavirostris*, 49.
 — *glacitans*, 104.
 — *marmorata*, 328.
 — *melleri*, 223.
 — *natator*, 221.
 — *penelope*, 456.

- Anas pœcilorhyncha*, 402.
 — *querquedula*, 364, 456.
 — *robusta*, 221.
 — *segetum*, 249.
 — *strepera*, 226, 328, 456.
Anastomus oscitans, 398.
Anous stolidus, 405.
 — *tenuirostris*, 405.
Anser cinereus, 400, 456.
 — *cygnoides*, 218.
 — *gambeli*, 425.
 — *hyperboreus*, 425.
 — *indicus*, 401.
 — *segetum*, 328, 456.
Anthochaera bulleri, 228.
Anthornis ruficeps, 227.
Anthropoides virgo, 28, 31, 324, 391.
Anthus aquaticus, 312.
 — *bertheloti*, 340.
 — *campestris*, 290, 442.
 — *cervinus*, 80.
 — *ludovicianus*, 420.
 — *maculatus*, 198.
 — *pratensis*, 442.
 — *richardi*, 106.
 — *rosaceus*, 80.
 — *sordidus*, 198.
 — *spinoletta*, 448.
 — *trivialis*, 443.
Aphanapteryx brœckii, 482.
 — *imperialis*, 481.
Aphriza virgata, 424.
Aptenodytes magellanicus, 126.
Apteryx mantelli, 251, 504.
Aquila bifasciata, 195.
 — *bonelli*, 435.
 — *chrysaetus*, 349, 434.
 — *fasciata*, 138.
 — *fulvescens*, 350, 351, 352.
 — *gurneyi*, 4, 13, 20.
 — *hastata*, 353.
 — *heliaca*, 435.
 — *imperialis*, 349, 350.
 — *malayensis*, 13, 195.
 — *mogilnik*, 104.
 — *mursi*, 353.
 — *nævia*, 223, 350, 351, 352, 353, 435.
 — *næviodes*, 223, 350.
 — *pennata*, 305, 435.
Aramides albiventris, 486.
 — *caayanensis*, 486.
Arboricola rufogularis, 385.
Arboricola torqueola, 321, 385.
Archibuteo ferrugineus, 427.
 — *lagopus*, 427.
Ardea alba, 325.
 — *bubulcus*, 256, 291, 468.
 — *cinerea*, 292, 325, 397, 400, 453.
 — *coromandra*, 325.
 — *elegans*, 477.
 — *garzetta*, 292, 325, 453, 477.
 — *goliath*, 256.
 — *herodias*, 424.
 — *idæ*, 477.
 — *leucoptera*, 477.
 — *purpurea*, 325, 397, 453, 468.
 — *ralloides*, 325, 453.
 — *russata*, 453.
 — *stellaris*, 364.
 — *sturmi*, 256.
Ardeola grayi, 398.
 — *leucoptera*, 398, 399.
Ardetta minuta, 325, 453, 469.
Asio brachyotus, 431.
 — *otus*, 437.
Astur cruentus, 11.
 — *griseiceps*, 6, 20.
 — *henicogrammus*, 10.
 — *melanoleucus*, 143.
 — *miconisus*, 436.
 — *novæ-hollandiæ*, 6, 20.
 — *palumbarius*, 195, 413, 436.
 — *trivirgatus*, 6, 20.
 — *unicolor*, 13.
Athene aruensis, 23, 27.
 — *borneensis*, 22, 27.
 — *castanea*, 23.
 — *castanoptera*, 23, 27.
 — *connivens*, 22.
 — *florensis*, 23, 27.
 — *franseni*, 23, 27.
 — *guteruhi*, 22, 27.
 — *hantu*, 23, 27.
 — *humeralis*, 24, 27.
 — *hypogramma*, 23, 27.
 — *jacquinoti*, 24, 27.
 — *malaccensis*, 22.
 — *meridionalis*, 438.
 — *noctua*, 438.
 — *ochracea*, 23, 27.
 — *persica*, 204.
 — *philippensis*, 22, 27.
 — *punctulata*, 22, 27.
 — *radiata*, 306.
Athene rufostriata, 22, 27.
 — *scutellata*, 22, 27.
 — *squamipila*, 23, 24, 27.
 — *strenua*, 23.
 — *sylvatica*, 23, 27.
 — *theomacha*, 24, 27.
 — *variegata*, 24, 27.
Atrichia rufescens, 218.
Attagen aquilus, 405.
 — *ariel*, 406.
Attagis falklandica, 188.
Avicida cuculoides, 143.
 — *madagascariensis*, 143.
 — *verreauxi*, 143.
Bæopipo aurantiiventris, 482.
Balearica pavonina, 35.
 — *regulorum*, 255.
Baza lophotes, 19.
 — *magnirostris*, 3, 18, 21.
 — *reinwardti*, 18, 21.
 — *rufa*, 19, 21.
 — *stenozona*, 18.
 — *sumatrensis*, 18, 21.
Bernicla antarctica, 127.
 — *brenta*, 328.
 — *canadensis*, 425.
 — *hutchinsi*, 425.
 — *leucoparia*, 425.
 — *magellonica*, 127.
 — *nigricans*, 425.
Bessornis gutturalis, 343.
 — *humeralis*, 266.
 — *natalensis*, 158.
 — *vociferans*, 158.
Blasipus heermanni, 426.
Bonasia sabinii, 424.
Botaurus lentiginosus, 424.
 — *stellaris*, 324, 398, 453.
Brachyotus cassini, 427.
 — *palustris*, 150, 460.
Brachypodius melanocephalus, 240.
Brachypternus fokiensis, 63.
Brachypteryx macroptera, 482.
Brachyrhamphus hypo-leucus, 345.
 — *marmoratus*, 427.
 — *temmincki*, 345, 428.
Bradyornis spekkii, 280.
Bradypterus coryphæus, 245.
Branta rufina, 402.

- Buarremon flavovirens*, 114.
Bubalornis niger, 267.
Bubo ascalaphus, 327.
 — *capensis*, 151.
 — *lacteus*, 50, 148.
 — *maculosus*, 243.
 — *magellanicus*, 188.
 — *maximus*, 437.
 — *minor*, 25.
 — *orientalis*, 25, 27.
 — *philippinensis*, 25, 27.
 — *poensis*, 149.
 — *sultanus*, 148.
 — *virginianus*, 419.
Bucephala albeola, 426.
 — *americana*, 426.
 — *islandica*, 428.
Buchanga longicaudata, 497.
 — *waldeni*, 497.
Bucorvus abyssinicus, 162.
Budytes aureocapilla, 132.
 — *citreola*, 78, 132.
 — *rayi*, 312.
 — *viridis*, 78.
Buphaga africana, 161.
 — *erythrorhyncha*, 163.
Buphus coromandus, 397.
Butalis caerulea, 156.
Buteo canescens, 305.
 — *erythronotus*, 188.
 — *ferox*, 305.
 — *liventer*, 19.
 — *madagascariensis*, 143.
 — *montanus*, 418.
 — *plumbeus*, 345.
 — *rufinus*, 305.
 — *vulgaris*, 194, 437.
Caccabis ehukar, 203, 213, 321, 384.
 — *græca*, 213, 214.
 — *petrosa*, 213.
 — *rufa*, 213.
 — *saxatilis*, 213, 214.
Cacomantis castaneiventris, 218.
Calamodyta doriae, 482.
 — *rufescens*, 245, 289.
Calamoherbe arundinacea, 157, 163.
 — *gracilirostris*, 156.
 — *palustris*, 104, 105.
 — *strepera*, 105, 157.
Calandrella brachydactyla, 180, 239, 355.
Calandrella raytal, 319.
Calicalicus madagascariensis, 223.
Calidris arenaria, 327, 428, 455.
Callacanthus burtoni, 318.
Callas cinerea, 227.
 — *olivascens*, 227.
Callene albiventris, 472.
Calliope pectoralis, 310.
Callispiza sclateri, 71.
Calliste atricapilla, 72.
 — *aurulenta*, 71.
 — *brasiliensis*, 72.
 — *cabanisi*, 71.
 — *frantzii*, 72.
 — *icterocephala*, 72.
 — *nigroviridis*, 72.
 — *sclateri*, 71.
Caloenas cruenta, 60, 78, 312.
Camaroptera natalensis, 156, 157.
Campephaga melanocephala, 45, 158, 159.
 — *nigra*, 45, 46, 159.
 — *phoenicea*, 159.
 — *xanthornoides*, 45, 159.
Campephilus magellanicus, 187.
Campethera chrysura, 270.
Cancerophagus gutturalis, 256.
Caprimulgus asiaticus, 333.
 — *europæus*, 449.
 — *infuscatus*, 151.
 — *isabellinus*, 333.
 — *monticolus*, 195.
 — *natalensis*, 151.
 — *ruficollis*, 449.
 — *smithi*, 151.
 — *tamaricis*, 333.
Carduelis caniceps, 318.
 — *elegans*, 206, 445.
 — *spinus*, 445.
 — *tristis*, 347.
Carine brodiei, 195.
 — *cuculoides*, 195.
Carpodacus californicus, 421.
 — *cassini*, 427.
 — *erythrurus*, 177, 241, 318.
 — *githagineus*, 208.
 — *phœnicopterus*, 208.
 — *rubicilla*, 318.
 — *sinaïticus*, 208.
Carpophaga insularis, 133.
 — *sylvatica*, 133, 373.

- Casarea cana*, 262.
Casarea rutila, 262, 321, 327, 401.
Casuarus australis, 348.
 — *johnsoni*, 348.
Cathartes aura, 418, 494.
Ceblepyris isabellina, 182.
 — *melanocephala*, 159.
Cecropis daurica, 472.
 — *erythropygia*, 472.
 — *hyperythra*, 472.
 — *rufula*, 472.
Centrites niger, 185, 187.
Centropus lafresnayanus, 102.
 — *senegalensis*, 290.
 — *tolu*, 102.
Cephalopyrus flammiceps, 311.
Ceratorhina monocerata, 427.
 — *suckleyi*, 428.
Cerionis melanocephala, 320, 380.
 — *satyra*, 380, 472.
Certhia americana, 421.
 — *borbonica*, 225.
 — *chloronotus*, 225.
 — *familiaris*, 448.
 — *himalayana*, 196, 307.
Ceryle alcyon, 419.
 — *guttata*, 196.
 — *maxima*, 154.
 — *stellata*, 187.
 — *torquata*, 187.
Cettia orientalis, 332, 333.
 — *sericea*, 332.
Ceyx lepida, 473.
 — *wallacii*, 473.
Chatura caudacuta, 195, 196.
 — *grandidieri*, 222.
 — *vauxi*, 421.
Chatusia goensis, 203.
 — *gregaria*, 389.
 — *leucura*, 390.
Chalcites auratus, 163.
 — *smaragdinus*, 164.
Chalophaps angusta, 133.
 — *indicus*, 133, 376.
Charadrius albiceps, 255.
 — *asiaticus*, 323.
 — *cantianus*, 453.
 — *hiaticula*, 453.
 — *leschenaulti*, 323, 332.
 — *longipes*, 389.
 — *minor*, 453.

- Charadrius morinellus*, 323.
 — *pluvialis*, 453.
 — *pyrrhotorax*, 323.
Chauelasmus streperus, 402, 426.
Chenalopex ægyptiacus, 49, 327.
Chera progne, 465.
Chicquera ruficollis, 141.
Chimarrhornis leucocephala, 310.
Chionis alba, 487.
Chlamydera guttata, 217.
Chloephaga magellanica, 189.
 — *poliocephala*, 189.
Chlorochrysa calliparia, 112.
Chlorophonia frontalis, 337.
 — *longipennis*, 337.
 — *occipitalis*, 337.
Chlorospiza chloris, 206.
 — *chlorotica*, 206.
 — *kawarabiba*, 206.
 — *sinica*, 206.
Chroicocephalus philadelphia, 428.
Chordiles popetue, 419.
Chrysococcyx auratus, 467.
 — *smaragdineus*, 45.
Chrysomitris dominicensis, 230.
 — *barbata*, 185, 186.
 — *pinus*, 421.
 — *spinoides*, 177, 319.
 — *tristis*, 427.
Chrysoptilus abingoni, 270.
 — *bennetti*, 270.
Ciccaba leptogrammica, 26, 27.
 — *myrtha*, 26, 27.
 — *seloputo*, 26, 27.
Cichladusa arquata, 280.
 — *guttata*, 281, 282.
Ciconia abdimi, 257.
 — *alba*, 254, 326, 454.
 — *leucocephala*, 397.
 — *nigra*, 326.
Cinclodes fuscus, 185, 186.
 — *patagonicus*, 185, 186.
Cinclus albicollis, 332.
 — *aquaticus*, 332, 439.
 — *asiaticus*, 313.
 — *cashmiriensis*, 313.
Cinnyris talatala, 270.
Circæetus bacha, 15, 16.
 — *celebensis*, 16.
 — *fasciolatus*, 139.
 — *gallicus*, 15, 21, 139, 435.
 — *holospilus*, 16.
 — *pectoralis*, 139.
 — *rufipectus*, 16.
Circus æruginosus, 413, 437.
 — *assimilis*, 19.
 — *cineraceus*, 104, 413, 414.
 — *cyaneus*, 413.
 — *hudsonius*, 356, 418.
 — *jardini*, 19, 21.
 — *macropterus*, 188.
 — *melanoleucus*, 356.
 — *ranivorus*, 464.
 — *spilonotus*, 356.
 — *swainsoni*, 414, 437.
Cissa flaviviridis, 200.
 — *occipitalis*, 200.
 — *sinensis*, 169.
Cisticola ayresi, 156.
 — *ruficeps*, 277, 279.
 — *schœnicola*, 130, 441.
Cistothorus palustris, 427.
Cittocinclæ macrura, 76.
Coccothraustes chloris, 445.
 — *icterioides*, 201.
 — *vulgaris*, 445.
Coccyzus melanoleucus, 202, 320.
Cochoa purpurea, 81.
 — *viridis*, 81, 354.
Colaptes chrysoides, 345.
 — *mexicanus*, 419.
Colaptes auratus, 268.
Colius capensis, 47.
 — *erythropus*, 247.
 — *striatus*, 247.
Collocalia affinis, 131.
 — *linchi*, 131.
Collyrio borealis, 427.
Columba castotis, 202.
 — *fasciata*, 423.
 — *guinea*, 141, 164.
 — *hodgsoni*, 202.
 — *intermedia*, 202, 320.
 — *livia*, 209, 210, 218, 450.
 — *oenas*, 209, 450.
 — *palumbus*, 209, 449.
 — *risoria*, 222.
 — *schimper*, 209, 210.
 — *trigonigera*, 164.
 — *turricola*, 209, 210.
Columba turtur, 450.
Colymboides minutus, 221.
Colymbus arcticus, 457.
 — *glacialis*, 229, 457.
 — *grylle*, 484.
 — *pacificus*, 427.
 — *septentrionalis*, 427, 457.
 — *torquatus*, 229, 427.
 — *troile*, 484.
Contopus borealis, 420.
 — *pertinax*, 345.
 — *richardsoni*, 420.
Conurus cyanolyseus, 187.
Copsychus saularis, 308.
Coracias caudata, 461.
 — *garrula*, 449.
 — *indica*, 461.
 — *nuchalis*, 461.
 — *pilosa*, 461.
Corethrura ruficollis, 261.
Corvus afer, 160.
 — *albicollis*, 246.
 — *americanus*, 428.
 — *andamanensis*, 132.
 — *capensis*, 142, 160.
 — *carnivorus*, 423.
 — *caurinus*, 423.
 — *corax*, 104, 165, 240, 317, 447.
 — *cornix*, 447.
 — *corone*, 447.
 — *culminatus*, 132, 165, 166.
 — *enca*, 132.
 — *frugilegus*, 447.
 — *intermedius*, 165, 200, 317, 356.
 — *levallanti*, 165.
 — *monedula*, 447.
 — *monedula-nigra*, 447.
 — *segetum*, 142, 160.
 — *spermolegus*, 447.
 — *splendens*, 166, 356.
 — *tibetanus*, 317.
Corydalla richardi, 79.
 — *rufula*, 79, 312.
Corythaix concolor, 268.
Corythaixoides concolor, 268.
Cossypha gutturalis, 343.
 — *natalensis*, 158.
Coturniculus mexicanus, 115.
Coturnix communis, 215, 321, 386, 450, 467.
Cotyle cincta, 43.
 — *palustris*, 464.

- Cotyle riparia*, 427.
 — *serripennis*, 421.
Coua coquereli, 223.
 — *cursor*, 223.
 — *verreauxi*, 223.
Crateropus chalybeius, 334.
 — *guttatus*, 281.
 — *jardinii*, 266, 461.
 — *swainsoni*, 158.
Crex minuta, 455.
 — *porzana*, 327, 455.
 — *pratensis*, 327, 455.
 — *pygmæa*, 327, 455.
Crithagra chrysopyga, 290.
Crocopus chlorogaster, 371.
 — *phœnicopterus*, 370.
Cryptolopha cinerea-pilla, 314.
Crypturus boucardi, 337.
 — *meserythrus*, 337.
 — *sallæi*, 337.
Cuculus canorus, 103, 202, 320, 448.
 — *glandarius*, 448.
 — *himalayanus*, 202.
 — *libanoticus*, 332.
 — *niger*, 202.
 — *poliocephalus*, 202, 320.
 — *striatus*, 202.
Culicipeta burkii, 314.
Cuncuma leucogaster, 15, 21.
Cursorius coromandelicus, 239, 388.
 — *gallicus*, 239, 240, 322.
Curvirostra americana, 421.
Cutia nipalensis, 81.
Cyanecula succica, 311.
Cyanocorax bellus, 111.
 — *uroleucus*, 111.
Cyanopica cooki, 111, 447.
 — *cyanea*, 111.
Cyanospiza amœna, 423.
Cyanura stelleri, 423.
Cyclopsitta coxeni, 217.
Cygnus americanus, 425.
 — *anatoides*, 488.
 — *buccinator*, 425.
 — *ferus*, 327, 364.
 — *nigricollis*, 488.
 — *olor*, 327.
Cymochorea melania, 345.
Cyornis beccariana, 482.
 — *ruficauda*, 315.
Cypselus affinis, 195, 307.
 — *alpinus*, 104.
 — *apus*, 120, 152, 306, 449.
 — *barbatus*, 152.
 — *caffer*, 50, 120, 152.
 — *gutturalis*, 152, 460.
 — *leuconyx*, 195, 196, 307.
 — *melba*, 120, 152, 195, 306, 449.
Dædalion longicauda, 17.
Dafila acuta, 402, 425.
Daption capensis, 128.
Delichon nipalensis, 472.
Dendrocitta frontalis, 170.
 — *himalayensis*, 200, 317.
 — *rufa*, 169.
 — *sinensis*, 170.
 — *vagabunda*, 62, 63, 169, 317.
Dendrocygna arcuata, 401.
 — *ausuree*, 401.
Dendroeca æstiva, 420.
 — *auduboni*, 420.
 — *coronata*, 420, 427.
 — *gratiæ*, 345.
 — *maculosa*, 427.
 — *nigrescens*, 427.
 — *occidentalis*, 427.
 — *townsendi*, 427.
Dendromus chrysurus, 270.
Dendroornis eburneiostris, 115.
 — *mentalis*, 115.
Dicaeum cruentatum, 63.
 — *rufescens*, 244.
Dicrurus himalayanus, 200, 355, 497.
 — *longicaudatus*, 316, 355, 497.
 — *musicus*, 246.
Didus bræckii, 482.
 — *ineptus*, 478, 481.
Dilophus carunculatus, 246.
Dinornis gigantea, 68.
Diomedea brachyura, 426.
 — *chlororhynchus*, 294, 295, 345.
 — *exulans*, 293.
 — *fuliginosa*, 295.
 — *melanophrys*, 295.
Donacola castaneo-thorax, 232, 233.
Doricha bryantæ, 115.
Doricha elizæ, 115.
 — *elyniæ*, 115.
Dromas ardeola, 284.
Dromococcyx mexicanus, 486.
 — *phasianellus*, 486.
 — *rufigularis*, 486.
Drymœca aberrans, 155.
 — *affinis*, 155.
 — *africana*, 245.
 — *brachyura*, 244.
 — *crinigera*, 197.
 — *curvirostris*, 155, 156.
 — *eremita*, 332.
 — *melanorhyncha*, 155.
 — *natalensis*, 155.
 — *pallida*, 155.
 — *pekinensis*, 62, 499.
 — *subruficapilla*, 244.
 — *thoracica*, 244.
Dryobates brunneifrons, 202.
 — *himalayanus*, 202.
Dryoscopus bouboul, 160.
Elainea modesta, 185.
Elanus caeruleus, 288, 436.
 — *hypoleucus*, 17, 21.
 — *intermedius*, 17.
 — *melanopterus*, 145, 242.
Ellisia chloropetoides, 223.
 — *lantzi*, 223.
Emberiza cia, 175, 318, 354, 355, 444.
 — *cirlus*, 444.
 — *citrinella*, 444.
 — *fucata*, 201, 318.
 — *himalayensis*, 201, 355.
 — *hortulana*, 441.
 — *miliaria*, 444.
 — *passerina*, 223.
 — *pityornis*, 355.
 — *pusilla*, 217.
 — *schenckii*, 441.
 — *septemstriata*, 462.
 — *spodiocephala*, 175.
 — *stewarti*, 175, 318.
 — *stracheyi*, 354.
Empidonax acadicus, 347, 427.
 — *flaviventris*, 427.
 — *minimus*, 347.
 — *pusillus*, 420.
Enicurus maculatus, 75, 312.

- Enneoctonus auriculatus*, 159.
 — *erythronotus*, 200.
 — *hardwickii*, 200.
Ephialtes capensis, 149.
 — *latipennis*, 151.
 — *lempiji*, 24, 27.
 — *leucospila*, 25, 27.
 — *magicus*, 24, 25, 27.
 — *mantis*, 24, 27.
 — *menadensis*, 25, 27.
 — *pennatus*, 25, 27, 195.
 — *senegalensis*, 149.
 — *sylvicola*, 25, 27.
Eremobius phœnicurus, 185.
Eremomela brachyura, 156.
Eremophila cornuta, 421.
Ereunetes occidentalis, 345.
 — *petrificatus*, 425.
Erimatura mersa, 328, 329.
 — *rubida*, 428.
Erythacus rubecula, 439.
Erythropis amurensis, 41, 42, 142.
 — *vespertinus*, 42, 142.
Erythropigia paena, 266.
Erythrospiza griseogularis, 9, 10.
Erythrosterna leucura, 316.
 — *parva*, 315.
Esacus recurvirostris, 391.
Estrela amandava, 173.
 — *astrild*, 247.
 — *carmelita*, 46, 156, 162.
 — *cucullata*, 46, 162.
 — *dufresnii*, 162.
 — *erythronota*, 267.
 — *lipiniana*, 267.
 — *melanogenys*, 162.
 — *nitidula*, 156.
 — *phaeton*, 232.
 — *polyzona*, 162.
 — *sanguinolenta*, 162.
 — *squamifrons*, 268.
 — *subflava*, 162.
 — *temporalis*, 232, 233.
Eudromias modesta, 188.
Eudynamis orientalis, 59.
Eugenes fulgens, 115, 251.
Eulabes religiosa, 172.
Eumyias melanops, 315.
- Eupherusa nigriventris*, 486.
Euphonia purpurea, 114.
 — *violacea*, 114.
Euplectes capensis, 51.
 — *sundevalli*, 462, 465, 466.
 — *taha*, 267.
 — *xanthomelas*, 51, 162.
Eupodotis afroides, 48.
 — *caerulescens*, 48.
 — *cafra*, 48, 467.
 — *cristata*, 247.
 — *edwardsi*, 387.
 — *ruficrista*, 269.
 — *senegalensis*, 48.
Eurycephalus anguitemens, 267.
Euspiza americana, 347.
 — *lathami*, 201.
Exanthemops rossi, 345.
Excalfactoria australis, 279.
 — *chinensis*, 217, 386.
 — *minima*, 217.
- Falcinellus igneus*, 326.
Falco aesalon, 413.
 — *aldrovandi*, 5.
 — *babylonicus*, 472.
 — *barbarus*, 141, 223.
 — *biarmicus*, 463.
 — *bido*, 15, 140.
 — *boschii*, 142.
 — *caligatus*, 13.
 — *chicquera*, 142.
 — *columbarius*, 418.
 — *communis*, 306.
 — *cuculoides*, 12.
 — *frontatus*, 5.
 — *gironieri*, 6.
 — *iogaster*, 8.
 — *jugger*, 352.
 — *lanarius*, 472.
 — *limnaetus*, 13.
 — *lunulatus*, 5.
 — *moluccensis*, 5.
 — *nigriceps*, 418.
 — *niveus*, 13.
 — *peregrinoides*, 223.
 — *peregrinus*, 5, 20, 141, 225, 412, 436.
 — *ponticerianus*, 16.
 — *radama*, 225.
 — *sacer*, 409, 411, 472.
 — *semitorquatus*, 269.
 — *sparverius*, 418.
 — *subbuteo*, 412, 436.
 — *subniger*, 118.
- Falco thoracicus*, 139.
 — *tinnunculus*, 195, 436.
Foudia eminentissima, 222.
Francolinus granti, 99.
 — *natalensis*, 467.
 — *pictus*, 383.
 — *pileatus*, 269.
 — *rovuma*, 99.
 — *sephaena*, 269.
 — *subtorquatus*, 467.
 — *swainsoni*, 268.
 — *vulgaris*, 203, 212, 321, 383.
Fratercula arctica, 457.
Fregata aquilus, 295.
Fregilus graculus, 317, 446.
 — *himalayanus*, 170, 317.
 — *pyrrhocorax*, 446.
Fringilla burtoni, 201.
 — *cœlebs*, 103, 444, 476.
 — *formosa*, 186.
 — *gayi*, 186.
 — *montifringilla*, 444.
 — *moreleti*, 344, 474.
 — *otoleucus*, 268.
 — *spinoides*, 201.
 — *tintillon*, 344.
Fringillaria africana, 268.
 — *impetuani*, 247.
 — *tahapisi*, 247, 462.
Fringillauda nemoricola, 319.
Fulica americana, 425.
 — *atra*, 327, 364, 396, 455.
 — *cristata*, 256, 261, 455, 470.
 — *newtoni*, 482.
Fuligula clangula, 457.
 — *cristata*, 327, 456.
 — *ferina*, 327, 456.
 — *marila*, 328.
 — *nyroca*, 328, 456.
Fulix affinis, 428.
 — *collaris*, 426.
 — *marila*, 426.
Fulmarus glacialis, 189.
- Galerita cristata*, 181, 239, 441.
Gallinago aquatorialis, 261.
 — *gallinula*, 327, 393.
 — *major*, 261.

- Gallinago media*, 327.
 — *nigripennis*, 51, 261
 — *paraguaiæ*, 189.
 — *scelopacinus*, 321, 393.
 — *solitaria*, 392.
 — *stenura*, 392.
 — *wilsoni*, 425.
Gallinula angulata, 52.
 — *chloropus*, 327, 455, 470.
 — *flavirostris*, 470.
 — *pumila*, 52.
Gallopardix lunulosa, 382.
Gallopheas albocristatus, 203, 321, 380.
 — *melanonotus*, 381.
Gallus bankiva, 218.
 — *ferrugineus*, 381.
Gambetta flavipes, 428.
 — *melanoleuca*, 425.
Garrulax albogularis, 199, 313.
 — *auritus*, 353.
 — *belangeri*, 249.
 — *bicolor*, 249.
 — *chinensis*, 249.
 — *delesserti*, 217.
 — *diardi*, 249.
 — *felicie*, 81.
 — *gularis*, 217.
 — *leucogaster*, 249.
 — *leucolophus*, 249.
 — *lineatus*, 199.
 — *sinensis*, 353.
 — *variegatus*, 199.
Garrulus bispecularis, 168, 317.
 — *cervicalis*, 111.
 — *glandarius*, 448.
 — *gularis*, 200.
 — *krynickyi*, 111.
 — *lanceolatus*, 168, 317.
 — *melanocephalus*, 111, 337.
 — *ornatus*, 200.
 — *sinensis*, 168.
Gastornis parisiensis, 221.
Gecinops occipitalis, 202.
 — *squamatus*, 202, 320.
Geocolaptes olivaceus, 462.
Geopsittacus occidentalis, 217.
Geothlypis macgillivrayi, 420.
 — *rostrata*, 230.
 — *trichas*, 230, 420.
Geotrygon bourcieri, 336.
 — *chiriquensis*, 336.
Geronticus hagedash, 260.
 — *papillosus*, 400.
Gerygone personata, 218.
Glareola lactea, 388.
 — *nordmanni*, 254, 322.
 — *pallasi*, 255.
 — *pratincola*, 255, 322, 452.
 — *torquata*, 255.
Glaucidium brodiaei, 306.
 — *gnoma*, 419.
 — *lieua*, 147, 151.
 — *nanum*, 188.
 — *perlatum*, 147.
Glaucis æneus, 486.
 — *affinis*, 486.
Graculus africanus, 264.
 — *bairdi*, 345.
 — *capensis*, 121.
 — *carbo*, 120, 121, 221.
 — *dilophus*, 426.
 — *intermedius*, 221.
 — *littoralis*, 221.
 — *lucidus*, 120, 121.
 — *miocænus*, 221.
 — *violaceus*, 426.
Grammatoptila striata, 314.
Grus antigone, 28, 32, 94, 391.
 — *australasianus*, 32.
 — *canadensis*, 424.
 — *carunculata*, 467.
 — *cinerea*, 28, 31, 324, 353, 453.
 — *leucogeranus*, 28, 31, 34.
 — *montignesia*, 31.
Guiraca melanocephala, 423.
Gypæctus barbatus, 136, 137, 194, 305, 434.
 — *meridionalis*, 136, 137.
Gyps fulvus, 138, 242, 408, 409, 463.
 — *kolbii*, 138.
 — *rueppelli*, 138.
 — *vulgaris*, 138.
Hadrostromus affinis, 115.
 — *aglaie*, 115.
 — *albiventris*, 115.
Hæmatopus niger, 424.
 — *ostralegus*, 453.
Hæmatornis bacla, 131.
Hæmatornis cheela, 131.
 — *elgini*, 131.
 — *spilogaster*, 131.
Hæmatospiza sipahi, 177.
Hæmophila humeralis, 115.
Haliaetus albicilla, 130.
 — *humilis*, 14.
 — *ichthyactes*, 14.
 — *indus*, 16.
 — *leucocephalus*, 418.
 — *leucogaster*, 15, 400.
 — *leucoryphus*, 350.
 — *pelagicus*, 345.
Heliastur indus, 16, 21, 400.
 — *leucosternus*, 16, 21.
 — *sphenurus*, 118.
Hælyon atricapillus, 399.
 — *cyanoleuca*, 265.
 — *senegalensis*, 265.
 — *smyrnensis*, 59, 196.
Halocyptena microsoma, 345.
Harelda glacialis, 426.
Heliomaster spectabilis, 115, 251.
Helminthophaga celata, 420.
Helotarsus ecaudatus, 140.
 — *leuconotus*, 140.
Hemicercus brookianus, 482.
Hemichelidon fuliginosa, 199, 314, 315.
Hemipteryx immaculata, 155.
Henicoperis longicauda, 17, 21.
Henicurus maculatus, 75, 198, 312.
 — *scouleri*, 75, 312.
Herodias alba, 397.
 — *andamanensis*, 133.
 — *concolor*, 133.
 — *garzetta*, 397, 468.
Hesperiphona affinis, 472.
 — *ieferioides*, 176, 318.
Heterosculus brevipes, 425.
Heterura sylvana, 80, 312.
Hierax ceruleus, 6, 20.
 — *sericeus*, 6, 20.
Himantopus candidus, 326, 395, 454.
Hirundo alfredi, 152, 153, 243.
 — *atrocaerulea*, 152.
 — *bicolor*, 420.
 — *daurica*, 196, 307.
 — *filifera*, 196, 307.
 — *frontalis*, 275.

- Hirundo fulva*, 153.
 — *fusca*, 307.
 — *horreorum*, 420.
 — *lunifrons*, 153, 243, 427.
 — *meyeni*, 185.
 — *paludicola*, 464.
 — *rufifrons*, 243.
 — *rupestris*, 307, 449.
 — *rustica*, 120, 449.
 — *thalassina*, 421.
 — *urbica*, 449.
Histrionicus torquatus, 426.
Hoplopterus albiceps, 255.
 — *armatus*, 255, 468.
 — *spinosus*, 324.
Huhua cinerascens, 149.
 — *fasciolata*, 149.
 — *lactea*, 148.
 — *verreauxi*, 147, 148.
Hydrobata mexicana, 420.
Hydrochelidon nigricans, 275.
Hydrophasianus chirurgus, 395.
Hydrornis natator, 221.
Hylactes castaneus, 336.
Hylatomus pileatus, 419.
Hylophorba ruficilla, 223.
Hyloterpa philomela, 132.
Hyperitres chrysoccephalus, 115.
Hyphantornis auricapillus, 246.
 — *aurifrons*, 162.
 — *capensis*, 162, 246.
 — *capitalis*, 246.
 — *mariquensis*, 466.
 — *nigriceps*, 290.
 — *nigrifrons*, 466.
 — *olivaceus*, 161, 462.
 — *sublarvatus*, 466.
 — *tahatali*, 267.
Hypherpes corallirostris, 223.
Hypocolius ampelinus, 181, 182.
Hypolais upcheri, 333.
Hypoleucus cirrhatus, 189.
Hypotriorchis cuvieri, 142.
 — *lunulatus*, 5, 20.
 — *severus*, 5, 20, 142.
 — *subbuteo*, 42, 142, 306.
Hypsipetes atricilla, 477.
 — *borbonica*, 477.
 — *capistrata*, 199.
Hypsipetes crassirostris, 477.
 — *madagascariensis*, 477.
 — *niveiceps*, 224.
 — *olivacea*, 477.
 — *psaroides*, 199, 314.
Hypurolepis domicola, 472.
Ianthia cyanura, 310.
Ibidorhynchus struthersi, 394.
Ibis aethiopica, 259.
 — *faeinellus*, 454.
Ichthyæus leucogaster, 15.
 — *nanus*, 14.
Icterus caffer, 161.
 — *grace-annæ*, 116.
 — *graysoni*, 116.
 — *mentalis*, 116.
 — *militaris*, 126.
 — *olivaceus*, 161.
 — *salvini*, 116.
 — *scaleri*, 116.
Ieraglaux humeralis, 24.
 — *jacquinoti*, 24.
 — *variegatus*, 24.
Irania finoti, 343.
Irrisor cyanomelas, 44.
 — *erythrorhynchus*, 44.
Ixulus flavicollis, 82.
 — *occipitalis*, 82.
Ixus chrysorrhoides, 63.
 — *sinensis*, 353.
 — *xanthopygius*, 334.
Juida bicolor, 46, 465.
 — *fulvipennis*, 246.
 — *leucogaster*, 290.
Junco oregonus, 422.
Jynx torquilla, 448.
Ketupu ceylonensis, 333.
 — *javanensis*, 25, 27.
Lagenoplastes ariel, 273, 275.
 — *fluvicola*, 472.
Lagopus albus, 370.
 — *rupestris*, 428.
Lampronetta fischeri, 345.
Lamprotornis anca, 259.
 — *eytoni*, 259.
Laniarius bouboul, 159.
 — *cubla*, 290.
 — *erythrogaster*, 160.
 — *ferrugineus*, 160.
Laniarius icterus, 248.
 — *rubiginosus*, 248.
 — *similis*, 267.
Lanio aurantius, 336.
 — *leucothorax*, 336.
Lanius antiquanus, 70.
 — *auriculatus*, 105, 438.
 — *bouboul*, 160.
 — *cephalomelas*, 68.
 — *collurio*, 105.
 — *crassirostris*, 501.
 — *dubius*, 104.
 — *erythronotus*, 316.
 — *excubitor*, 438.
 — *ferrugineus*, 160.
 — *fuscatus*, 69, 70.
 — *hardwickii*, 316.
 — *lugubris*, 69.
 — *melanthus*, 68, 69.
 — *meridionalis*, 438.
 — *nasutus*, 70.
 — *nigriceps*, 71.
 — *rufus*, 105.
 — *schach*, 69.
 — *tephronotus*, 70.
 — *viitatus*, 316.
Larus argentatus, 330, 428, 458.
 — *audouini*, 330.
 — *belcheri*, 426.
 — *californicus*, 345, 428.
 — *delawarensis*, 428.
 — *desnoyersi*, 221.
 — *dominicanus*, 189.
 — *elegans*, 221.
 — *fuscus*, 330, 458.
 — *gelastes*, 330.
 — *glaucescens*, 426.
 — *ichthyæus*, 330.
 — *leucophæus*, 330.
 — *marinus*, 458.
 — *melanocephalus*, 330.
 — *occidentalis*, 345, 428.
 — *ridibundus*, 330, 458.
 — *rissa*, 458.
 — *suckleyi*, 426.
 — *totoideus*, 221.
Larivora eyana, 310.
Leptoptila cassini, 230.
 — *verreauxi*, 230.
Leptoptilus argala, 396.
 — *crumeniferus*, 259.
 — *javanicus*, 397.
Lerwa nivicola, 382.
Leucocerca albicollis, 314.
 — *albifrontata*, 314.

- Leucocerca fuscoventris*, 314.
Leucopternis supercilii, 336.
Leucosticte griseinucha, 418, 422.
 — *tephrocotis*, 422.
Limnocolaptes niger, 470.
Limosa algocephala, 454.
 — *fedoa*, 425.
 — *lapponica*, 454.
 — *melanura*, 58.
Linota brevirostris, 319.
 — *cannabina*, 208, 445.
 — *montium*, 319.
Liothrix argentea, 81.
 — *lutea*, 81.
Lobivanellus albiceps, 255.
 — *goensis*, 390.
Lophodytes cucullatus, 426.
Lophophanes beavani, 83.
 — *inornatus*, 345.
 — *melanolophus*, 83, 311.
 — *rufonuchalis*, 311.
Lophophaps ferruginea, 217.
 — *leucogaster*, 218.
Lophophorus impeyanus, 191, 194, 203, 320, 379.
Lophortyx californicus, 417.
Lophotes reinwardti, 18.
Loxia curvirostra, 446.
 — *lathamii*, 267.
Machetes pugna, 445.
Machlolophus spilonotus, 85.
 — *xanthogenys*, 84, 311.
Macronyx flavicollis, 290.
Macrorhamphus griseus, 425.
 — *scolopaceus*, 345.
Malaconotus australis, 269.
 — *boulboul*, 160.
 — *ferrugineus*, 160.
 — *rufiventris*, 160.
 — *similis*, 267.
Malacoptila castanea, 104.
Malacortyx supercilii, 742.
Malacoturnix superciliosus, 472.
Malurus callainus, 217.
 — *hypoleucus*, 217.
 — *leuconotus*, 217.
Mareca americana, 426.
Mareca penelope, 328, 402.
Mecistura caudata, 300, 302.
 — *longicaudata*, 300.
 — *rosea*, 298, 300.
 — *swinhoei*, 302.
Megalama asiatica, 201.
 — *virens*, 201, 320.
Megalophonus rostratus, 156.
 — *sabota*, 268.
Megisturus trivirgatus, 301.
Melanornis atra, 159.
Melanerpes formicivorus, 116.
Melanetta velutina, 426.
Melanochlora sultanea, 472.
Melanocorypha calandra, 208, 332.
 — *maxima*, 217.
 — *torquata*, 180, 239, 355.
Melanotis hypoleucus, 337.
Melierax gabar, 145.
 — *musculus*, 145.
 — *polyzonus*, 145.
Melizophilus undatus, 441.
Melophus melanicterus, 175, 318.
Melospiza fallax, 422.
 — *lincolni*, 205, 428.
 — *rufina*, 422.
Melospiza rubricata, 115.
Mergus americanus, 426.
 — *albellus*, 328.
 — *castor*, 402.
 — *serrator*, 328, 426, 457.
Merops aegyptius, 154, 155, 288.
 — *albicollis*, 155.
 — *apiaster*, 449.
 — *chrysocercus*, 155.
 — *savignii*, 154, 155, 288, 289.
 — *superciliosus*, 288, 289.
 — *viridis*, 307.
Merula albocincta, 313.
 — *boulboul*, 313.
 — *castanea*, 313.
 — *libonyana*, 266.
 — *litsitsirupa*, 270.
 — *obscura*, 266.
Metopidius indicus, 395.
Metoponia pusilla, 179, 319.
Micronis soloensis, 12, 20.
Micropterus cinereus, 127, 189, 498.
Milvago chimango, 187.
Milvus aegyptius, 436.
 — *affinis*, 16, 21, 143.
 — *ater*, 143.
 — *govinda*, 143, 195, 306, 352, 400.
 — *ictinus*, 436.
 — *migrans*, 143, 436.
Minus carunculatus, 227.
 — *patagonicus*, 185.
Minla castaneiceps, 82.
 — *cinerea*, 82.
 — *ignotincta*, 82.
Mirafrassama, 179.
 — *erythroptera*, 179.
 — *horsfieldi*, 278.
 — *sabota*, 268.
Mitrephorus fulvifrons, 345.
Monarcha carinata, 272.
 — *trivirgata*, 271, 272.
Montifringilla adamsi, 217, 319.
 — *hematopygia*, 319.
 — *nivalis*, 208.
Mormon cirrhatus, 427.
Motacilla alba, 298, 442.
 — *boarula*, 198, 312, 442.
 — *borbonica*, 225.
 — *capensis*, 245.
 — *dukhunensis*, 77, 78.
 — *flava*, 442.
 — *lugubris*, 332.
 — *luzoniensis*, 76, 77, 78.
 — *maderaspatana*, 76.
 — *personata*, 311.
 — *rayi*, 442.
 — *vidua*, 332.
 — *yarrelli*, 298, 442.
Munia acuticauda, 173.
 — *malabarica*, 173, 318.
 — *malacca*, 173.
 — *striata*, 172.
 — *undulata*, 172.
Muscicapa albicollis, 438.
 — *albugularis*, 314.
 — *atricapilla*, 438.
 — *grisola*, 438.
 — *superciliaris*, 199.
 — *tricolor*, 103.
Muscicapula supercilii, 315.
Muscipeta melanoleuca, 103.

- Muscisaxicola mentalis*, 185, 187.
Mycerobas melanoxanthus, 176.
Mycteria australis, 397.
Myiadestes elizabethæ, 336.
 — *obscurus*, 336.
 — *ralloides*, 336.
 — *unicolor*, 336.
 — *venezuelensis*, 336.
Myiagra azurea, 132.
 — *tytleri*, 132.
Myiobius latirostris, 102.
Myiodiodes pusillus, 427.
Myiodynastes chrysocephalus, 115.
 — *superciliaris*, 115.
Myiophoneus temmincki, 198, 312.
Myiotheretes rufiventris, 187.
Myrmecocichla formicivora, 44.
Myzanthus ignipectus, 307.

Nasiterna pusio, 498.
Nectarinia affinis, 334.
 — *afra*, 43, 243.
 — *asiatica*, 307, 334.
 — *chalybeia*, 43, 244.
 — *dabirii*, 224.
 — *famosa*, 43.
 — *fusca*, 244.
 — *gouldiæ*, 217, 307.
 — *insignis*, 217.
 — *natalensis*, 289.
 — *nipalensis*, 224.
 — *osea*, 217, 334.
 — *saturata*, 217.
 — *zeylonica*, 217.
Nectris amaurosoma, 345.
 — *fuliginosus*, 345.
Neophron ginginianus, 137, 194.
 — *percnopterus*, 137, 242, 409, 434.
 — *pileatus*, 137.
Neopus malayensis, 13, 20.
Neornis flavolivacea, 308.
Nephocætes niger, 345, 421.
Nettapus coromandelinus, 401.
Nettion carolinense, 426.
Nilau capensis, 159.
Niltava strophbiata, 200.
Nisæctus alboniger, 13, 215, 216.

Nisus cirrhocephalus, 7.
 — *ceramensis*, 7.
 — *cruentus*, 9, 11.
 — *erythrauchen*, 7.
 — *griseogularis*, 9.
 — *gularis*, 306.
 — *iogaster*, 8.
 — *poliocephalus*, 12.
 — *polleni*, 223.
 — *rhodogaster*, 7.
 — *soloensis*, 12.
 — *sulaensis*, 10.
 — *torquatus*, 11.
 — *trinotatus*, 8.
 — *virgatus*, 6, 7.
Noctua borncoensis, 22.
 — *capensis*, 147, 151.
 — *castanoptera*, 23.
 — *guteruhi*, 22.
 — *hirsuta*, 22.
 — *perlata*, 147, 151.
 — *punctulata*, 22.
 — *squamipila*, 23.
 — *sylvatica*, 23.
Nucifraga hemispila, 167, 200, 317.
 — *multipunctata*, 317.
Numenius arguata, 292, 327, 394, 454.
 — *borealis*, 493.
 — *hudsonicus*, 425, 493.
 — *lineatus*, 394.
 — *longirostris*, 425.
 — *phæopus*, 327, 454, 493.
 — *tenuirostris*, 327, 454.
Numida coronata, 253, 463.
 — *cristata*, 253, 291.
 — *mitrata*, 291.
 — *pucherani*, 291.
 — *vulturina*, 501.
Nyctale acadica, 419.
Nyctea nivea, 370, 419.
Nyctiardea gardeni, 428.
Nycticorax griseus, 256, 325, 398, 454.
 — *obscurus*, 189.

Œdemia americana, 426.
 — *nigra*, 328, 456.
Œdienemus bistriatus, 336.
 — *crepitans*, 322, 391, 452.
 — *indicus*, 322, 391.
 — *maculosus*, 254.
 — *senegalensis*, 254.
 — *superciliaris*, 336.

Œna capensis, 290.
Onychoprion anæsthetus, 404.
 — *melanauchen*, 404.
Oreocætes cinclorhynchus, 313.
 — *erythrogaster*, 313.
Oreocinclia mollissima, 313.
 — *inframarginata*, 132.
Oreophilus ruficollis, 189.
Oreopyra caloléma, 115.
 — *cinereicauda*, 115.
 — *leucaspis*, 115.
 — *venusta*, 115.
Oreortyx pictus, 414, 424.
Oriolus andamanensis, 132.
 — *capensis*, 161.
 — *galbula*, 205, 439.
 — *horsfieldi*, 132.
 — *kundoo*, 199.
 — *macrurus*, 132.
Orites caudatus, 300, 301.
 — *glaucoangularis*, 302.
 — *tephronotus*, 302.
Orthotomus longicauda, 104.
Ortygometra pygmæa, 261.
Ortygornis gularis, 385.
 — *ponticeriana*, 384.
Ortyx graysoni, 115.
 — *pectoralis*, 115.
Osmotreron bicincta, 371.
Otis arabs, 321.
 — *deliciosa*, 37.
 — *houbara*, 322.
 — *macqueeni*, 241, 322.
 — *ruficrista*, 269.
 — *tarda*, 321, 451, 452.
 — *tetrax*, 322, 388, 452.
Otocompsa leucogenys, 314.
Otocoris penicillata, 319.
Otogyps auricularis, 242.
 — *calvus*, 194.
 — *fulvus*, 194.
Otus brachyotus, 187.
 — *capensis*, 151.
 — *leucotis*, 149.
 — *wilsonianus*, 427.
Oxyurus spinicauda, 185, 187.
 — *tupinieri*, 125, 187.

Palæornis affinis, 132.
 — *alexandri*, 201.
 — *columboides*, 132.
 — *erythrogenys*, 132.
 — *javanicus*, 132.

- Palaeornis melanorhynchus*, 132.
 — *nicobaricus*, 132.
 — *nigrirostris*, 132.
 — *rosa*, 319.
 — *schisticeps*, 132, 201, 319.
Palumbœna eversmanni, 374.
Palumbus casiotis, 320.
Pandion carolinensis, 418.
 — *haliaetus*, 15, 103, 435.
 — *humilis*, 14.
 — *leucocephalus*, 15, 21.
Pardalotus affinis, 118, 119, 273.
 — *melanocephalus*, 119, 273.
 — *punctatus*, 119, 272, 273.
 — *striatus*, 119, 273.
 — *xanthopygus*, 124, 218.
Paroides caudatus, 300.
 — *flammeiceps*, 197.
 — *longicaudus*, 300.
Parus ater, 442.
 — *cæruleus*, 442.
 — *caudatus*, 296, 298, 300, 301, 442.
 — *cinereus*, 63, 84, 311.
 — *commixtus*, 63, 64.
 — *cristatus*, 442.
 — *erythrocephalus*, 197.
 — *major*, 63, 442.
 — *melanophus*, 197.
 — *minor*, 63.
 — *montanus*, 345, 427.
 — *monticolus*, 83, 85, 197, 311.
 — *occidentalis*, 427.
 — *rufescens*, 421.
 — *trivirgatus*, 298, 301.
 — *xanthogenys*, 197.
Passer arcuatus, 467.
 — *cinnamomeus*, 173, 174, 201, 318, 334.
 — *cisalpinus*, 445.
 — *domesticus*, 204, 445.
 — *flavicollis*, 174.
 — *hispaniolensis*, 445.
 — *indicus*, 173, 201, 240, 318.
 — *moabiticus*, 333.
 — *montanus*, 174.
Passer motitensis, 268.
 — *petronia*, 445.
 — *pyrrhonotus*, 354.
 — *russatus*, 334.
 — *salicarius*, 240.
Passerculus alaudinus, 427.
 — *guttatus*, 115.
 — *sandwichiensis*, 422.
 — *savanna*, 427.
Passerella townsendi, 422.
Pastor roseus, 171, 172.
Pavo cristatus, 379.
 — *muticus*, 379.
 — *nigripennis*, 353, 354.
Pelagornis miocenensis, 221.
Pelecanus aquilus, 57.
 — *conspicillatus*, 365.
 — *crispus*, 235, 239, 331, 365, 369.
 — *fuscus*, 365, 426.
 — *gracilis*, 221.
 — *minor*, 264, 265.
 — *mitratus*, 264, 265.
 — *onocrotalus*, 264, 265, 365, 369, 458.
 — *philippensis*, 236, 265, 365, 369.
 — *rufescens*, 264, 265, 365.
 — *thagus*, 365, 369.
 — *trachyrhynchus*, 365.
Pelionetta perspicillata, 426.
Perdica cambaiensis, 386.
Perdix cinerea, 450.
 — *rufa*, 450.
 — *sephaena*, 269.
 — *swainsoni*, 268.
Pericrocotus brevirostris, 200, 316.
 — *roseus*, 200.
Perisoreus canadensis, 423.
Peristera afra, 47, 164.
 — *chalcospilus*, 164.
 — *larvata*, 470.
Pernis apivorus, 143.
 — *cristatus*, 3, 17, 21.
 — *longicauda*, 17.
Petrocincla rupestris, 50.
Petrocossyphus cyanus, 313.
Petronia brachydaetyla, 206, 333.
 — *stulta*, 204, 205.
Peucea botteri, 115.
Pezophaps solitaria, 362.
Phaeton rubricauda, 295, 405.
Phalacrocorax carbo, 331, 458.
 — *cirrhatas*, 189.
 — *graculus*, 458.
 — *punctatus*, 406.
 — *pygmaeus*, 331.
Phalaropus fulicarius, 101.
 — *hyperboreus*, 424.
Phaleris pusilla, 345.
Phasianus colchicus, 212.
 — *lineatus*, 381.
 — *scintillans*, 217.
 — *sæmmerringi*, 217.
 — *torquatus*, 353.
 — *wallichi*, 203, 321, 380.
Phasmopteryx capensis, 151.
Pheucticus tibialis, 115.
Philetærus socius, 50.
Philomela lusciniæ, 440.
Philydor virgatus, 114.
Phodilus badius, 26, 27.
Phœnicopterus antiquorum, 327.
 — *blythi*, 496.
 — *erythræus*, 292.
 — *ignipalliatus*, 189.
 — *minor*, 496.
 — *roseus*, 495, 496.
 — *rubidus*, 496.
Phœnicotherapis rubica, 230.
 — *vinacea*, 230.
Pholeopteryx cunicularia, 188.
Phrygilus formosus, 185.
 — *fruticeti*, 185.
 — *gayi*, 185, 186.
 — *melanoderus*, 185, 186.
 — *xanthogrammus*, 185, 186.
Phyllopnæuste rufa, 131.
Phylloscopus affinis, 308.
 — *fuscatus*, 73.
 — *lugubris*, 73.
 — *nitidus*, 73.
 — *tristis*, 73, 308.
 — *viduanus*, 73.
Pica hudsonica, 423.
 — *melanoleuca*, 447.
 — *mystacalis*, 111.
Picoides hirsutus, 427.
Picumnus innominatus, 320.

- Picus andamanensis*, 132.
 — *aurantiiventris*, 482.
 — *brunneifrons*, 320.
 — *cathpharius*, 223.
 — *gairdneri*, 419.
 — *harrisi*, 419.
 — *himalayensis*, 319.
 — *macii*, 249.
 — *magellanicus*, 126.
 — *major*, 448.
 — *medius*, 448.
 — *minor*, 448.
 — *peronii*, 223.
 — *syriacus*, 333.
 — *viridis*, 448.
Pinicola canadensis, 423.
Pipastes agilis, 78, 79, 312.
 — *arboreus*, 79, 312.
Pitta bertae, 482.
 — *mackloti*, 348.
Pitylus humeralis, 114.
Planesticus atrogularis, 313.
Platalea alba, 257.
 — *cristata*, 257.
 — *leucorodia*, 326, 454.
 — *luzoniensis*, 257.
 — *tenuirostris*, 257.
Plautus impennis, 112.
Plectropterus gambensis, 292, 502.
 — *rueppelli*, 292, 502.
Plocepasser mahali, 267.
Ploceus abyssinicus, 161.
 — *aurifrons*, 162.
 — *baya*, 172.
 — *capensis*, 162, 247, 290.
 — *dubius*, 267.
 — *icterocephalus*, 162.
 — *lathamii*, 267.
 — *oryx*, 247.
 — *taha*, 267.
 — *tahatali*, 267.
Plotus leuallanti, 477.
 — *melanogaster*, 477.
Pluvianus ægyptius, 322.
Pnoepyga striata, 308.
Podica personata, 111.
Podiceps auritus, 263.
 — *cornutus*, 263, 427.
 — *cristatus*, 329, 364, 428, 457.
 — *griseogena*, 427.
 — *minor*, 329, 457.
 — *nigricollis*, 263, 329, 457.
 — *occidentalis*, 427.
 — *philippensis*, 403.
 — *rollandi*, 189.
Podilymbus podiceps, 428.
Pœcilonetta erythrorhyncha, 471.
Polioæetus humilis, 14, 21.
 — *ichthyaetus*, 14, 21.
Polioptila cærulea, 347.
Poliornis liventer, 19, 21.
 — *poliogenys*, 19, 21.
Polyboroides radiatus, 146.
 — *typicus*, 146, 147.
Polyborus brasiliensis, 125, 188.
 — *tharus*, 188.
Polysticta quopopa, 268.
Polytelis alexandræ, 217.
*Pomatorhinus erythro-
genys*, 199, 314.
 — *stridulus*, 60.
Poœcetes gramineus, 428.
Porphyrio cœlestis, 59.
 — *erythropus*, 469.
 — *madagascariensis*, 470.
 — *poliocephalus*, 395.
 — *smaragdinus*, 59.
 — *smaragdonotus*, 469, 470.
 — *veterum*, 455.
Pratincola caprata, 309.
 — *ferrea*, 309.
 — *indica*, 309.
 — *pastor*, 157, 245, 464.
 — *rubicola*, 309, 464.
Prion banksi, 293.
 — *brevirostris*, 340.
*Prionochilus xanthopy-
gius*, 344.
Prionops talacoma, 267.
Procarduelis nipalensis, 177.
Procellaria æquinoctialis, 283.
 — *capensis*, 283, 293.
 — *cinerca*, 293.
 — *gigantea*, 94, 293.
 — *glacialoides*, 283, 293.
 — *mollis*, 340.
Progne purpurea, 427.
Proparus vinipectus, 316.
Propasser pulcherrimus, 318.
 — *rhodochlamys*, 318.
 — *rhodochrous*, 318.
 — *thura*, 177.
Psaltria concinna, 250.
 — *erythrocephala*, 250.
Psaltroparus minimus, 427.
Psaroglossa spiloptera, 200.
Psittacus rodericanus, 482.
Pternistes sclateri, 345.
Pterocles alchata, 211, 451.
 — *arenarius*, 211, 377, 378, 450.
 — *exustus*, 211, 378.
 — *fasciatus*, 320, 378.
 — *gutturalis*, 269.
 — *senegalensis*, 211.
 — *variegatus*, 269.
Pterorhinus davidi, 61.
Pteruthius erythropterus, 81, 200, 316.
 — *rufiventer*, 81.
*Ptilonorhynchus rawns-
leyi*, 348.
Ptilotis cassidix, 218.
Pucrasia macrolopha, 203, 321, 380.
Puffinus anglorum, 331, 332, 459.
 — *barolii*, 331, 332.
 — *major*, 459.
Pycnonotus bengalensis, 160, 199.
 — *cafer*, 249.
 — *hæmorrhous*, 199.
 — *leucogenys*, 199.
 — *nigricans*, 290.
 — *pygæus*, 249, 314.
Pyrauga ludoviciana, 420.
Pyrgisoma kieneri, 115.
 — *xantusi*, 115.
Pyrgita motitensis, 268.
Pyrrhocorax alpinus, 170, 317.
Pyrrhoplectes epauletta, 177.
Pyrrhula coccinea, 298, 344.
 — *erithacus*, 177.
 — *erythrocephala*, 176, 318.
 — *europæa*, 446.
 — *murina*, 344.
 — *nipalensis*, 177.
 — *vulgaris*, 81, 298.
Pyrrhulauda grisea, 179, 180, 355.
 — *leucotis*, 268.
Querquedula circia, 402.
 — *crecca*, 402.
 — *cyanoptera*, 189, 428.
 — *discors*, 428.
 — *hottentotta*, 262, 471.

- Rallus aquaticus*, 264, 327.
 455, 471.
 — *cærulescens*, 471.
Recurvirostra avocetta,
 133, 326, 454.
 — *sinensis*, 133.
Reguloides occipitalis,
 308.
 — *proregulus*, 308.
 — *trochiloides*, 73,
 308.
Regulus albosuperciliaris,
 197.
 — *calendula*, 420.
 — *cristatus*, 308, 442.
 — *himalayensis*, 308.
 — *ignicapillus*, 442.
 — *satrapa*, 420.
 — *xanthoschistus*, 197.
Rhea americana, 126.
Rhipidura fusciventris,
 199.
 — *motacilloides*, 103.
Rhyacophilus solitarius,
 428.
Rhynchæa bengalensis,
 394.
Rhynchaspis capensis, 50.
 — *clypeata*, 328.
Rhynchops albicollis,
 405.
Rissa septentrionalis,
 428.
Ruticilla cæruleocephala,
 309.
 — *cyana*, 197.
 — *cyaneula*, 439.
 — *fuliginosa*, 310.
 — *moussieri*, 104.
 — *phœniceura*, 439.
 — *rufiventris*, 309.
 — *semirufa*, 333.
 — *tithys*, 439.
Salpinctes obsoletus, 421.
Salpornis spilonota, 472.
Saltator plumbiceps, 115.
Sarcophorus albiceps,
 255.
 — *bilobus*, 390.
Sarcorhamphus gryphus,
 125.
Saxicola albigularis, 343.
 — *amphileuca*, 333.
 — *atrogularis*, 234,
 235.
 — *aurita*, 440.
 — *bifasciata*, 44, 158.
 — *capistrata*, 233, 234,
 235.
 — *caprata*, 197.
Saxicola deserti, 308.
 — *eurymelæna*, 333.
 — *ferrea*, 197.
 — *indica*, 197.
 — *leucomela*, 234, 235.
 — *leucuroides*, 234,
 235, 355.
 — *monticola*, 44, 464.
 — *œnanthe*, 234, 235,
 440.
 — *olivastra*, 308.
 — *opistholeuca*, 355.
 — *picata*, 233, 234,
 235, 308.
 — *pileata*, 158.
 — *rubetra*, 440.
 — *rubicola*, 440.
 — *saltatrix*, 308.
 — *stapazina*, 440.
 — *valida*, 308.
Sayornis sayus, 427.
Scardafella inca, 345.
Scelostrix capensis, 150,
 151.
Schizærhis concolor, 268.
Scolecophagus cyanocephalus, 423.
Scolopax gallinago, 455.
 — *gallinula*, 455.
 — *minor*, 110.
 — *rusticola*, 109, 327,
 391, 454.
Scops asiaticus, 25.
 — *asio*, 419.
 — *capensis*, 151.
 — *giu*, 437.
 — *latipennis*, 149.
 — *magicus*, 25.
 — *malayanus*, 25.
 — *noctula*, 24.
 — *sunia*, 25.
 — *zorca*, 25.
Scotopelia peli, 250.
Seytalopus magellanicus,
 125, 185, 187.
Seena aurantia, 403.
Selasphorus rufus, 419.
Sericulus rawnsleyi, 348.
Serinus aurifrons, 207.
 — *hortulanus*, 207,
 445.
 — *pusillus*, 207.
 — *syriacus*, 207.
Serpentarius reptilivorus,
 242.
Serpophaga parvirostris,
 185.
Sialia mexicana, 420.
Sibia capistrata, 314.
Simorhynchus cassini,
 485.
Siphia leucomelanura,
 316.
 — *strophciata*, 316.
Sitta aculeata, 421.
 — *cesia*, 298, 332.
 — *canadensis*, 421.
 — *europæa*, 156, 298,
 448.
 — *himalayensis*, 196,
 307.
 — *leucopsis*, 196, 307.
 — *pygmaea*, 421.
Siva cyanouroptera, 82.
 — *strigula*, 81, 316.
Sparvius cirrhocephalus,
 11.
Spatula clypeata, 402,
 428.
Spermestes cucullata,
 290.
Spermophila atriceps,
 115.
 — *torqueola*, 115.
Spheniscus demersus,
 489.
Sphenocercus apicaudus,
 373.
 — *sphenurus*, 320,
 372.
Sphenura broadbenti,
 218.
Sphyrapicus ruber, 419.
 — *varius*, 419.
Spilornis bacha, 15, 21,
 139, 140.
 — *bido*, 140.
 — *cheela*, 15, 21, 140.
 — *holospilus*, 16, 21.
 — *rufipectus*, 3, 16, 21.
 — *sulaensis*, 3, 16, 21.
Spiza cyanea, 347.
Spizaetus alboniger, 215,
 216.
 — *bellicosus*, 139.
 — *borneonensis*, 215.
 — *cirrhatas*, 13, 14,
 20, 215, 216.
 — *coronatus*, 139.
 — *gurneyi*, 13.
 — *kieneri*, 14, 21,
 216.
 — *lanceolatus*, 3, 13,
 21.
 — *nanus*, 14, 21, 215,
 216.
 — *philippensis*, 216,
 356.
 — *spilogaster*, 138.
Spizalauda deva, 181.
Spizella breweri, 428.
 — *socialis*, 422.

- Squatrola helvetica*, 291,
 322, 428, 453.
Stachyrhis pyrrhops, 314.
Stercorarius catarrhactes,
 295.
Sterna anglica, 331.
 — *bergi*, 262.
 — *brachypus*, 262, 263,
 284.
 — *cantiaca*, 262, 458.
 — *caspia*, 331.
 — *cristata*, 262.
 — *fissipes*, 458.
 — *fluvialis*, 263, 458.
 — *fuliginosa*, 286, 474.
 — *galericulata*, 262.
 — *hirundo*, 321.
 — *hybrida*, 330, 331.
 — *innotata*, 404.
 — *javanica*, 403, 404.
 — *macrura*, 262, 263.
 — *melanogaster*, 217.
 — *minuta*, 331, 458.
 — *nigra*, 331.
 — *senegalensis*, 263.
 — *velox*, 262, 295, 330.
Sternula balænarum, 248.
 — *jerdoni*, 403.
 — *minuta*, 403.
 — *orientalis*, 403.
Strepsilas interpres, 428,
 453.
 — *melanocephalus*, 424.
Strix affinis, 150.
 — *capensis*, 151.
 — *candida*, 150.
 — *ceylonensis*, 25.
 — *delicatula*, 26, 118.
 — *flammea*, 26, 150, 437.
 — *hirsuta*, 22.
 — *javanica*, 26, 27.
 — *ketupu*, 25.
 — *lieua*, 151.
 — *noctula*, 24.
 — *pagodarum*, 26.
 — *poensis*, 150.
 — *rosenbergi*, 26, 27.
 — *rufescens*, 24.
 — *spadicea*, 23.
 — *strepitans*, 25.
 — *sumatrana*, 25.
 — *walleri*, 118.
Struthio australis, 253.
 — *camelus*, 253, 331.
Sturnella militaris, 185,
 186.
 — *neglecta*, 423.
Sturnopaster contra, 170,
 172.
Sturnus unicolor, 446.
 — *vulgaris*, 170, 446.
Sula alba, 473.
 — *arvernensis*, 221.
 — *bassana*, 458, 474
 — *fiber*, 405.
 — *piscator*, 405.
 — *ronzonii*, 221.
Suya criniger, 308.
Sycalis arvensis, 185.
Sycobius bicolor, 51.
Sylvia affinis, 74.
 — *atricapilla*, 441.
 — *bonellii*, 441.
 — *bowmani*, 332.
 — *cinerea*, 74, 441.
 — *conspicillata*, 441.
 — *curruca*, 75, 441.
 — *doriae*, 332.
 — *hortensis*, 441.
 — *hypolais*, 441.
 — *melanocephala*, 441.
 — *orphea*, 73, 441.
 — *provincialis*, 441.
 — *subalpina*, 441.
 — *sylvicola*, 441.
 — *trochilus*, 441.
 — *turdoides*, 157.
Sylvietta micrura, 156.
Sylviarus modestus, 311.
Synallaxis agithaloides,
 185.
 — *anthoides*, 185.
 — *sordida*, 185.
Synæcus australis, 279.
Sypheotides bengalensis,
 388.
Syrnium aluco, 437.
 — *cinereum*, 427.
 — *newarense*, 306.
 — *nivicolum*, 306.
Syrnhaptes paradoxus,
 217.
Tachypetes aquilus, 54,
 56.
 — *minor*, 56.
Tachyphonus delatirii,
 336.
 — *phceniceus*, 336.
 — *propinquus*, 239.
 — *rubrifrons*, 230.
Tadorna beloni, 456.
 — *cana*, 226.
 — *prisca*, 226.
 — *tadornoides*, 226.
 — *vulpanser*, 226.
Tanioglaux capensis, 147,
 151.
Tanioptera pyrope, 185,
 187.
Tanagrella dubusi, 112.
Tantalus ibis, 260.
Tantalus leucocephalus,
 398, 399.
Tanysiptera riedeli, 102.
Tarsiger chrysæus, 310.
Tchitrea paradisa, 199,
 314.
Temenuchus andamanen-
sis, 132.
 — *erythropygius*, 133.
 — *malabaricus*, 171.
 — *pagodarum*, 171.
Tephrodornis grisola,
 132.
Tetrao franklini, 428.
 — *obscurus*, 423, 424.
 — *richardsoni*, 424.
Tetraogallus himalayen-
sis, 382.
Textor erythrorhynchus,
 267.
 — *niger*, 267.
Thalassidroma leachi,
 458.
 — *leucogaster*, 292.
 — *melanogaster*, 283,
 292, 293.
 — *pelagica*, 292, 293,
 459.
Thamnobia cambaiensis,
 310.
 — *cinnamomeiventris*,
 158.
 — *ptymatura*, 157.
Thamnolæa albiscapulata,
 157, 158.
Thamnophilus doliatus,
 115.
 — *nigrescens*, 114.
 — *tenuifasciatus*, 114.
Thaumalea amherstiae,
 224.
Thaumatantia linnæi, 486.
 — *luciae*, 486.
Theristicus melanops,
 126, 189, 488.
Thinocorus rumicivorus,
 188.
Thresciornis melanoce-
phalus, 399.
Thryothorus bewicki, 421.
Tichodroma muraria,
 307, 327.
Tigrisoma cabanisi, 337.
Tinamus cinnamomeus,
 337.
 — *delatirii*, 337.
 — *robustus*, 337.
Tinnunculus alaudarius,
 6, 306, 413.
 — *gracilis*, 224.
 — *moluccensis*, 5, 20.

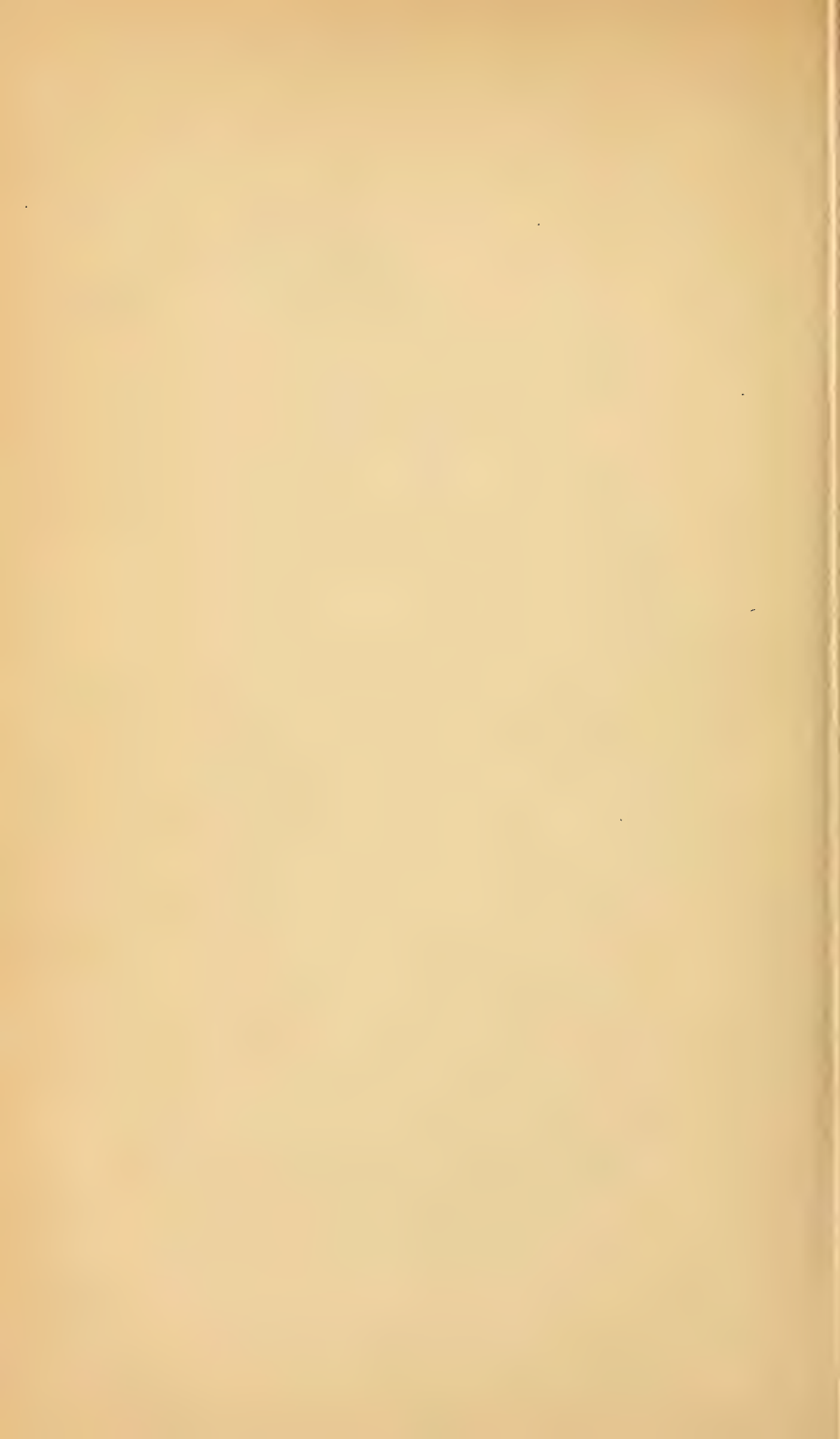
- Tinnunculus punctatus*, 224.
 — *rupicoloides*, 142.
 — *sparverius*, 188.
Totanus calidris, 327, 454.
 — *fuscus*, 454.
 — *glareola*, 321, 327.
 — *glottis*, 292, 327, 395, 454.
 — *hypoleucus*, 454.
 — *ochropus*, 327, 454.
 — *stagnatilis*, 327.
Trachyphonus cafer, 268.
 — *vaillanti*, 268.
Treron cantillans, 202.
 — *delalandii*, 164.
Tringa alpina, 327, 425, 455.
 — *americana*, 425.
 — *canutus*, 260.
 — *minuta*, 327, 469.
 — *schinzi*, 292.
 — *subarquata*, 292, 327, 455.
 — *temmincki*, 455.
 — *wilsoni*, 425.
Tringoides hypoleucus, 469.
Trochalopteryx erythrocephalum, 314.
 — *lineatum*, 314.
 — *variegatum*, 314.
Troglodytes hyemalis, 421.
 — *magellanicus*, 185.
 — *parkmanni*, 421.
 — *parvulus*, 448.
Turacus albocinctus, 133.
Turdirostris umbratilis, 482.
Turdulus wardi, 132, 313.
Turdus albocinctus, 198, 355.
 — *atroregularis*, 198, 355.
 — *boulboul*, 198.
 — *castaneus*, 198, 355.
 — *cinclorhynchus*, 198.
 — *cyaneus*, 438.
 — *erythrogaster*, 198.
 — *falklandicus*, 185, 186.
 — *gurneyi*, 156.
 — *hodgsoni*, 313.
 — *iliacus*, 438.
 — *javanicus*, 132.
 — *libonyana*, 266.
 — *merula*, 438.
 — *migratorius*, 420.
Turdus musicus, 438.
 — *mollissimus*, 198.
 — *navius*, 420.
 — *obscurus*, 266.
 — *olivaceus*, 45.
 — *ourovang*, 477.
 — *pallasi*, 427.
 — *pandoo*, 198.
 — *pilaris*, 438.
 — *pœcilopterus*, 160.
 — *ruficollis*, 355.
 — *rufulus*, 132.
 — *saxatilis*, 438.
 — *torquatus*, 439.
 — *unicolor*, 198.
 — *ustulatus*, 420.
 — *viscivorus*, 103, 438.
Turnagra striata, 199.
Turnix dussumieri, 387.
 — *ocellata*, 387.
 — *pugnax*, 387.
 — *sykesi*, 387.
 — *sylvatica*, 450.
 — *taigoor*, 386.
 — *tanki*, 387.
Turtur auritus, 210, 211, 355.
 — *cambayensis*, 230, 320, 375.
 — *gelastes*, 355.
 — *humilis*, 376.
 — *meena*, 203, 320, 355, 375.
 — *monticolus*, 355.
 — *picturatus*, 477.
 — *risorius*, 203, 210, 211, 320, 333, 376.
 — *rostratus*, 477.
 — *rupicolus*, 374, 375.
 — *senegalensis*, 47, 210, 211.
 — *suratensis*, 203, 320, 376.
 — *tigrinus*, 376.
Tyrannus verticallis, 419, 420.
Ulula badia, 26.
 — *leptogrammica*, 26.
 — *myrtha*, 26.
 — *seloputo*, 26.
Upucerthia dumetoria, 185, 187.
Upupa epops, 307, 448.
 — *minor*, 243.
Uraspiza erythrauchen, 7.
 — *sulaensis*, 10.
Uraspiza torquata, 10.
Uria columba, 427, 484, 485.
 — *grylle*, 347, 484, 485.
 — *mandti*, 484, 485.
 — *troile*, 457.
Urocissa cucullata, 169, 317.
 — *flavirostris*, 317.
 — *occipitalis*, 168.
Vanellus albiceps, 255.
 — *cayanus*, 490.
 — *coronatus*, 49.
 — *cristatus*, 323, 453.
 — *melanopterus*, 49.
Vidua principalis, 290.
Vireo gilvus, 420.
 — *plumbeus*, 345.
 — *pusillus*, 345.
 — *solitarius*, 421.
 — *swainsoni*, 345.
 — *vicinior*, 345.
Vivia innominata, 320.
Volvocivora borneensis, 482.
Vultur cinereus, 434.
 — *fulvus*, 327, 433.
 — *monachus*, 407, 408.
Xanthocephalus icterocephalus, 423.
Xenicus gilviventris, 227.
Xenopicus albolarvatus, 345.
Xiphocolaptes emigrans, 336.
 — *major*, 336.
Zenaidura carolinensis, 423.
Zonotrichia africana, 268.
 — *albicollis*, 428.
 — *belli*, 345.
 — *canicapilla*, 185.
 — *coronata*, 422.
 — *gambeli*, 422.
 — *melanotis*, 115.
Zoothera monticola, 313.
Zosterops borbonica, 225.
 — *cerulescens*, 277.
 — *chloronotus*, 225.
 — *hesitata*, 225.
 — *mauritanica*, 225.
 — *mauritiana*, 225.
 — *palpebrosus*, 82, 197, 311.

PRINTED BY TAYLOR AND FRANCIS,
RED LION COURT, FLEET STREET.









Pl. 1623 Pl. III



J. Smith del.

M & N Harrington



M. T. von Heuglin. pinx.
J. Wolf lithog.

M & N Hanhart imp.

HYPOCOLIUS AMPELINUS.





The 1880 PLATE



del.

M & N. Harcourt inn

SERINUS AURIFRONS







M T von Heuglin pinx.
J. Wolf lithog.

M & N Harhart. imp

I CICHLADUSA ARQUATA. 2. C. GUTTATA



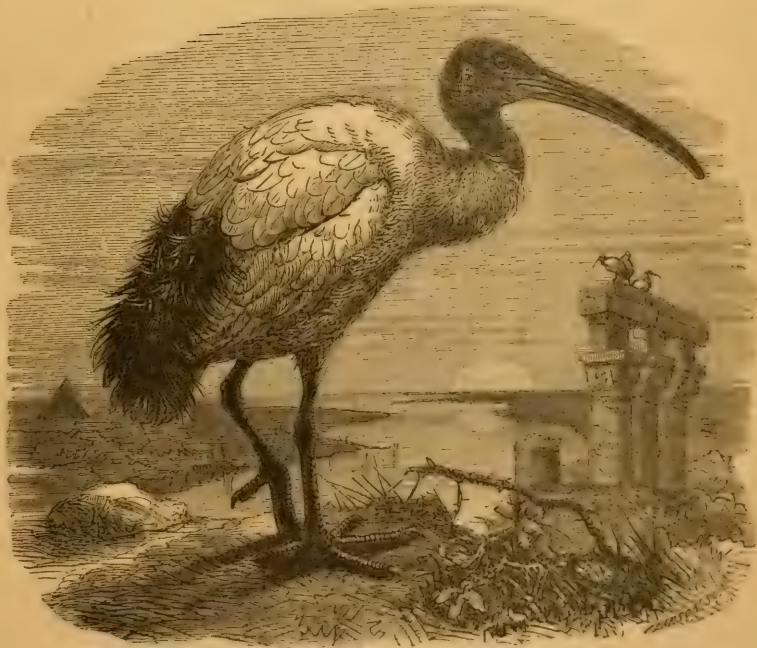
THE IBIS,

A

QUARTERLY JOURNAL OF ORNITHOLOGY.

EDITED BY

ALFRED NEWTON, M.A.,
PROFESSOR OF ZOOLOGY AND COMPARATIVE ANATOMY
IN THE UNIVERSITY OF CAMBRIDGE,
F.L.S., F.Z.S., ETC., ETC.



LONDON:
JOHN VAN VOORST, 1, PATERNOSTER ROW.

Annual Subscription, payable before 31st March each year, £1 1s.

Books on Ornithology published by Mr. Van Voorst.

Annual Subscription, payable before 31st March, £1 1s.

THE IBIS, A QUARTERLY JOURNAL OF ORNITHOLOGY. NEW SERIES.

EDITED BY

ALFRED NEWTON, M.A.,

PROFESSOR OF ZOOLOGY AND COMPARATIVE ANATOMY IN THE UNIVERSITY OF CAMBRIDGE, F.L.S., F.Z.S., ETC.

Vol. I. 1865. 566 pp., 11 Plates, price £1 6s.

II. 1866. 440 pp., 11 Plates, price £1 6s.

III. 1867. 490 pp., 10 Plates, price £1 6s.

Communications may be addressed to the EDITOR, Professor NEWTON, Magdalene College, Cambridge. Books for Review, Subscriptions, Advertisements, &c., to the Publisher.

Single Numbers will be charged 6s. each until three months after the date of publication, after which the price will be advanced to 7s. 6d.

In 8vo, price 30s., Vol. III.

THE RECORD OF ZOOLOGICAL LITERATURE FOR THE YEAR 1866.

EDITED BY

Dr. ALBERT C. L. G. GÜNTHER.

The Ornithological portion by Professor NEWTON.

Vol. I. (to be completed in 2 vols.), Demy 8vo, pp. 445, price 10s. 6d.

With Two Illustrations by WOLF.

THE BIRDS OF NORFOLK.

By HENRY STEVENSON, F.L.S.

8vo, sewed, price 6d.

A SUMMARY OF THE OCCURRENCES OF THE GREY PHALAROPE IN GREAT BRITAIN DURING THE AUTUMN OF 1866.

By J. H. GURNEY, JUN.

Royal 8vo, cloth, price 7s. 6d.

A DESCRIPTIVE CATALOGUE OF THE RAPTORIAL BIRDS IN THE NORFOLK AND NORWICH MUSEUM.

By JOHN HENRY GURNEY.

Part I., containing *Serpentariidæ*, *Polyboridæ*, *Vulturidæ*.

Post 8vo, pp. 272, price 7s. 6d., with Lithograph Frontispiece by WOLF.

THE BIRDS OF MIDDLESEX.

A CONTRIBUTION TOWARDS THE NATURAL HISTORY OF THE COUNTY.

By JAMES EDMUND HARTING, F.Z.S.

Price 7s. 6d., a Third Edition of

ORNITHOLOGICAL RAMBLES IN SUSSEX, WITH A CATALOGUE OF THE BIRDS OF THAT COUNTY, AND REMARKS ON THEIR LOCAL DISTRIBUTION.

By A. E. KNOX, M.A., F.L.S., F.Z.S.

Royal 4to, with Eighteen Plates and numerous other Illustrations, price £1 1s.

THE DODO AND ITS KINDRED.

OR, THE HISTORY, AFFINITIES, AND OSTEOLOGY OF THE DODO,
SOLITAIRE, AND OTHER EXTINCT BIRDS OF THE ISLANDS MAURITIUS,
RODRIGUEZ, AND BOURBON.

By H. E. STRICKLAND, M.A., F.R.G.S., F.G.S., ETC., AND A. G. MELVILLE, M.D., M.R.C.S., ETC.

NATURAL HISTORY OF THE BIBLE.

BY THE REV. H. B. TRISTRAM, M.A.,

Author of 'The Land of Israel,' etc.

Demy 12mo. With numerous Illustrations. Cloth boards, 7s. 6d.

"It forms, for its bulk and scope, the most exhaustive and systematic manual we possess on the subject of the Natural History of the Bible. What makes it especially to be relied on is its being largely the fruit of personal knowledge and experience on the part of the writer, he having, with this express purpose, spent nearly a year in the Holy Land, accompanied by well-qualified botanical and zoological collectors. It is in the department of animal and vegetable life that Mr. Tristram is more particularly at home; and in these chapters of his book he will be found to expatiate with an amount of painstaking and thoughtful observation which gives his work a peculiar value, together with a degree of fulness which baffles selection."—*Saturday Review*.

SOCIETY FOR PROMOTING CHRISTIAN KNOWLEDGE, 77 GREAT QUEEN STREET,
LINCOLN'S INN FIELDS, W.C.; 4 ROYAL EXCHANGE, E.C.;
48 PICCADILLY, W.—LONDON. AND BY ALL BOOKSELLERS.

Just Published, 8vo, pp. 382.

THE BIRDS OF SOUTH AFRICA.

A DESCRIPTIVE CATALOGUE OF ALL THE KNOWN SPECIES
OCCURRING SOUTH OF THE TWENTY-EIGHTH PARALLEL
OF LATITUDE.

BY

EDGAR LEOPOLD LAYARD, F.Z.S.,

CURATOR OF THE SOUTH-AFRICAN MUSEUM, ETC.

The study of the Birds of Southern Africa is beset with very great difficulty. No work gives even a bare catalogue of their names; and the descriptions of the various species inhabiting the Cape Colony are scattered through many different publications, some so expensive as to be beyond the reach of ordinary collectors, while others are journals extending over a long series of years.

In size the 'Birds of South Africa' will be similar to Mr. Trimen's '*Rhopalocera Africæ Australis*,' so as to form with it and contemplated works on the *Reptilia* &c., a complete South-African Fauna.

London: Longmans; Trübner.

Just Published, 8vo, pp. 68, xxxi. With a Map.

ORNITHOLOGIE BRASILIENS,

RESULTATE VON JOHANN NATTERERS REISEN IN DEN JAHREN 1817 BIS 1835.

DARGESTELLT VON

AUGUST VON PELZELN,

Custos am K.K. zoologischen Cabinet in Wien.

I. ABTHEILUNG.

Wien: Pichler's Witwe & Sohn. London: Williams & Norgate.

CONTENTS OF NUMBER XIII.—NEW SERIES.

	Page
I. On the Raptorial Birds of the Malay Archipelago. By ALFRED R. WALLACE, F.Z.S. &c. (Plate I.)	1
II. Stray Notes on Ornithology in India. By ALLAN HUME, C.B.	23
III. An Eighth additional List of Birds from Natal. By J. H. GURNEY, F.Z.S. (Plate II.)	40
IV. Ornithological Notes from Amoy. By ROBERT SWINHOE, Her Majesty's Consul, F.Z.S. &c.	52
V. Observations on the Egg-beds of <i>Æpyornis</i> . By ALFRED GRANDIDIER	65
VI. Note on <i>Lanius melanthes</i> , Swinhoe, and on <i>Lanius cephalomelas</i> , Bp. By Viscount WALDEN	68
VII. On a recently-discovered Tanager of the genus <i>Calliste</i> . By P. L. SCLATER, M.A., Ph.D., F.R.S., Secretary to the Zoological Society of London. (Plate III.)	71
VIII. Notes on Various Indian Birds. By R. C. BEAVAN, Capt. Bengal Staff Corps, C.M.Z.S.	73
IX. Remarks on <i>Professor Huxley's</i> proposed Classification of Birds. By THE EDITOR	85
X. Notices of Recent Ornithological Publications:—	
1. <i>English</i> :—Sclater's edition of Nitzsch's 'Pterylography'; Eyton's 'Osteologia Avium'; G. R. Gray's 'List of <i>Gallinæ</i> '; Rodd's 'Ornithology of Cornwall'; Bullmore's 'Cornish Fauna'; J. H. Gurney, jun., on Occurrences of the Grey Phalarope; Layard's 'Birds of South Africa'	96
2. <i>French</i> :—Verreaux on New Birds; Ornithological papers in the 'Revue de Zoologie'	102
3. <i>Swiss</i> :—'Bulletin de la Société Ornithologique Suisse,' vol. i. part 2	104
4. <i>Italian</i> :—Riva's 'Ornitologo Ticinese'; Bettoni's 'Uccelli che nidificano in Lombardia,' parts 1-15; Cara's 'Osservazioni al Catalogo dal Dottore Salvadori'	105
5. <i>German</i> :—Finsch and Hartlaub, 'Ornithologie der Viti-, Samoa- und Tonga-Inseln'; Hoffmann, 'Die Waldschnepfe'	107
6. <i>Dutch and Belgian</i> :—Schlegel's 'Muséum des Pays-Bas,' part 9; Finsch's 'Die Papageien,' vol. i.; Dubois's 'Archives Cosmologiques'	110
7. <i>Norwegian and Swedish</i> :—Collett's 'Observationer fra Hvaløerne'; Holmgren's 'Skandinaviens Foglar,' part 1; Westerlund's 'Skandinavisk Oologi'	113
8. <i>American</i> :—Lawrence on New American Birds and on New <i>Trochilidæ</i> ; Cassin's 'Third Study of the <i>Icteridæ</i> '; Jackson on the Habits of <i>Melanerpes formicivorus</i>	114
9. <i>Australian</i> :—Diggle's 'Ornithology of Australia,' parts 1 to 10	117
XI. Letters, Announcements, &c.:—	
Letters from Messrs. E. P. Ramsay and E. L. Layard, Prof. M'Coy, Dr. Cunningham, and Messrs. J. H. Gurney, W. E. Brooks, E. Blyth, and Tristram; Nature of the Colouring-matter in the Touracoos; Deaths of Mr. Chambers-Hodgetts and Dr. David Scott; Mr. W. Jesse's Appointment as Zoologist to the Abyssinian Expedition; Erratum	118

Covers for binding last year's Volume may be had on application to the Publisher, at 1s. 4d. each.

Communications may be addressed to the EDITOR, Professor NEWTON, Magdalene College, Cambridge. Books for Review, Subscriptions, Advertisements, &c. to the Publisher, JOHN VAN VOORST, 1 Paternoster Row, London, E.C.

THE IBIS,

A

QUARTERLY JOURNAL OF ORNITHOLOGY.

EDITED BY

ALFRED NEWTON, M.A.,
PROFESSOR OF ZOOLOGY AND COMPARATIVE ANATOMY
IN THE UNIVERSITY OF CAMBRIDGE,
F.L.S., F.Z.S., ETC., ETC.



LONDON:
JOHN VAN VOORST, 1, PATERNOSTER ROW.

Annual Subscription, payable before 31st March each year. £1 1s.

Books on Ornithology published by Mr. Van Voorst.

Annual Subscription, payable before 31st March, £1 1s.

THE IBIS, A QUARTERLY JOURNAL OF ORNITHOLOGY. NEW SERIES.

EDITED BY

ALFRED NEWTON, M.A.,

PROFESSOR OF ZOOLOGY AND COMPARATIVE ANATOMY IN THE UNIVERSITY OF CAMBRIDGE, F.L.S., F.Z.S., ETC.

Vol. I. 1865. 566 pp., 11 Plates, price £1 6s.

II. 1866. 440 pp., 11 Plates, price £1 6s.

III. 1867. 490 pp., 10 Plates, price £1 6s.

Communications may be addressed to the EDITOR, Professor NEWTON, Magdalene College, Cambridge. Books for Review, Subscriptions, Advertisements, &c., to the Publisher.

Single Numbers will be charged 6s. each until three months after the date of publication, after which the price will be advanced to 7s. 6d.

Vol. I. (to be completed in 2 vols.), Demy 8vo, pp. 445, price 10s. 6d.

With Two Illustrations by WOLF.

THE BIRDS OF NORFOLK.

By HENRY STEVENSON, F.L.S.

Royal 8vo, cloth, price 7s. 6d.

A DESCRIPTIVE CATALOGUE OF THE RAPTORIAL BIRDS IN THE NORFOLK AND NORWICH MUSEUM

By JOHN HENRY GURNEY.

Part I., containing Serpentariidæ, Polyboridæ, Vulturidæ.

Post 8vo, pp. 272, price 7s. 6d., with Lithograph Frontispiece by WOLF.

THE BIRDS OF MIDDLESEX.

A CONTRIBUTION TOWARDS THE NATURAL HISTORY OF THE COUNTY

By JAMES EDMUND HARTING, F.Z.S.

Price 7s. 6d., a Third Edition of

ORNITHOLOGICAL RAMBLES IN SUSSEX,

WITH A CATALOGUE OF THE BIRDS OF THAT COUNTY, AND REMARKS

ON THEIR LOCAL DISTRIBUTION.

By A. E. KNOX, M.A., F.L.S., F.Z.S.

To be sold, a fine copy of

WILSON AND BONAPARTE'S

AMERICAN ORNITHOLOGY.

IN 5 VOLS., IMPERIAL 4to. GREEN MOROCCO, GILT EDGES. PRICE £3

APPLY TO MR. VAN VOORST.

Just Published, 8vo, pp. 382. Price 7s. 6d.

THE BIRDS OF SOUTH AFRICA.

A DESCRIPTIVE CATALOGUE OF ALL THE KNOWN SPECIES
OCCURRING SOUTH OF THE TWENTY-EIGHTH PARALLEL
OF LATITUDE.

BY

EDGAR LEOPOLD LAYARD, F.Z.S.,

CURATOR OF THE SOUTH-AFRICAN MUSEUM, ETC.

The study of the Birds of Southern Africa is beset with very great difficulty. No work gives even a bare catalogue of their names; and the descriptions of the various species inhabiting the Cape Colony are scattered through many different publications, some so expensive as to be beyond the reach of ordinary collectors, while others are journals extending over a long series of years.

In size the 'Birds of South Africa' is similar to Mr. Trimen's '*Rhopalocera Africa Australis*,' so as to form with it and contemplated works on the *Reptilia* &c., a complete South-African Fauna.

London: Longmans; Trübner.

Recherches Anatomiques et Paléontologiques pour servir à l'histoire des

OISEAUX FOSSILES DE LA FRANCE.

PAR

M. ALPHONSE MILNE-EDWARDS,

PROFESSEUR DE ZOOLOGIE À L'ÉCOLE SUPÉRIEURE DE PHARMACIE,
AIDE-NATURALISTE AU MUSÉUM D'HISTOIRE NATURELLE, ETC.

Cet ouvrage se composera de deux volumes de texte, format grand in-4^o et d'un Atlas l'environ 200 planches lithographiées, même format. Il paraîtra par livraisons de 2 ou 3 feuilles de texte et de 5 planches.

Prix de la livraison: 5 francs, et de l'ouvrage complet, pour les souscripteurs: 200 francs.

Paris: Victor Masson et Fils, Place de l'Ecole de Médecine.

Just Published, 8vo, pp. 68, xxxi. With a Map.

ORNITHOLOGIE BRASILIENS,

RESULTATE VON JOHANN NATTERERS REISEN IN DEN JAHREN 1817 BIS 1835.

DARGESTELLT VON

AUGUST VON PELZELN,

Custos am K.K. zoologischen Cabinetes in Wien.

I. ABTHEILUNG.

Wien: Pichler's Witwe & Sohn. London: Williams & Norgate.

CONTENTS OF NUMBER XIV.—NEW SERIES.

	Page
XII. Notes on <i>Mr. Layard's</i> 'Birds of South Africa.' By J. H. GURNEY, F.Z.S. (Plate IV.)	13
XIII. Notes on Various Indian Birds. By R. C. BEAVAN, Capt. Bengal Staff Corps, C.M.Z.S.	165
XIV. Note on <i>Hypocolius ampelinus</i> , Bp. By Dr. M. T. VON HEUGLIN. (Plate V.)	181
XV. List of Birds collected in the Straits of Magellan by <i>Dr. Cunningham</i> , with remarks on the Patagonian Avifauna. By P. L. SCLATER, M.A., Ph.D., F.R.S., and OSBERT SALVIN, M.A., F.L.S., F.Z.S.	183
XVI. Notes on the Birds observed during a march from Simla to Mussoorie. By ROBERT C. TYTLER, Colonel in Her Majesty's Indian Army, C.M.Z.S. &c.	190
XVII. On the Ornithology of Palestine. Part VII. By the Rev. H. B. TRISTRAM, M.A., F.L.S., C.M.Z.S. (Plates VI.* & VII.)	204
XVIII. Corrections of, and additions to, the Catalogue of the Raptorial Birds of the Malay Archipelago. By ALFRED R. WALLACE, F.Z.S. &c.	215
XIX. Notices of Recent Ornithological Publications:—	
1. <i>English</i> :—Gould's 'Birds of Great Britain,' parts xi. and xii.; Gould's 'Birds of Asia,' part xix.; Gould's 'Birds of Australia'—Supplement, part iv.; Darwin's 'Variation of Animals and Plants under Domestication'; Tristram's 'Natural History of the Bible'; A. Leith Adams's 'Wanderings of a Naturalist in India'; Blackburn's 'Birds drawn from Nature'	216
2. <i>French</i> :—A. Milne-Edwards's 'Oiseaux Fossiles de la France'; Verreaux on New Birds; Ornithological Papers in the 'Revue de Zoologie'	220
3. <i>Dutch</i> :—Schlegel and Pollen—'Recherches sur la Faune de Madagascar'; Crommelin's 'Contributions à l'Hybridologie Ornithologique'	224
4. <i>German</i> :—Von Pelzeln's 'Ornithologie Brasiliens'; Von Pelzeln on Birds of New Zealand; 'Journal für Ornithologie—Neue Folge'; Rudolf Blasius's 'Eischaale der Vögel'	226
5. <i>Swedish</i> :—Malmgren on the Natural History of Spitsbergen	229
6. <i>American</i> :—Coues on the Anatomy of <i>Colymbus glacialis</i> ; Bryant's 'Birds seen at the Bahamas' and 'Birds of St. Domingo'; Lawrence on Birds of New Granada; Cassin's 'Fasti Ornithologiæ—No. 3'	229
XX. Letters, Announcements, &c.:—	
Letters from Messrs. E. P. Ramsay, Allan Hume, E. L. Layard, Blyth, J. H. Gurney, Gould, W. Jesse and O. Salvin; Incubation of the <i>Apteryx</i> in England; Sale of the Collection of the late Prince Maximilian of Wied; Deaths of M. F. C. Dubois, Mr. Andersson, M. E. Verreaux, and Edward Jesse	231

* Plate VI. will be given with the next Number.

Covers for binding last year's Volume may be had on application to the Publisher, at 1s. 4d. each.

Communications may be addressed to the EDITOR, Professor NEWTON, Magdalene College, Cambridge. Books for Review, Subscriptions, Advertisements, &c. to the Publisher, JOHN VAN VOORST, 1 Paternoster Row, London, E.C.

THE IBIS,

A

QUARTERLY JOURNAL OF ORNITHOLOGY.

EDITED BY

ALFRED NEWTON, M.A.,
PROFESSOR OF ZOOLOGY AND COMPARATIVE ANATOMY
IN THE UNIVERSITY OF CAMBRIDGE.
F.L.S., F.Z.S., ETC., ETC.



LONDON:
JOHN VAN VOORST, 1, PATERNOSTER ROW.

Annual Subscription, payable before 31st March each year, £1 1s.

RECORD OF ZOOLOGICAL LITERATURE FOR THE YEAR 1867 (VOL. IV.).

EDITED BY

A. C. L. G. GÜNTHER, M.A., M.D., F.R.S. ETC.

PART I.,

CONTAINING

THE REPORTS ON

MAMMALS, BIRDS, REPTILES, AND FISHES,

WILL BE PUBLISHED IN A FEW DAYS.

(THE ORNITHOLOGICAL PORTION BY PROFESSOR NEWTON.)

The Price of this Part will be 10s.

THE

ENTOMOLOGICAL PORTION,

NOW IN THE PRESS, WILL BE CHARGED 14s.

THE THIRD PART

WILL COMPRISE THE

MOLLUSCA, CRUSTACEA, AND THE

LOWER ANIMALS,

AND WILL BE CHARGED 10s.

The Price of the entire Volume will, as before, be £1 10s.

John Van Voorst, 1 Paternoster Row.

In preparation,

A MONOGRAPH

OF THE

ALCEDINIDÆ OR KINGFISHERS.

By R. B. SHARPE.

No work has hitherto appeared in English exclusively devoted to the study of the beautiful family of the ALCEDINIDÆ, or Kingfishers.

In 1851, Dr. REICHENBACH, in his 'Handbuch der speciellen Ornithologie,' published a Monograph of this family; but, unfortunately, as a scientific work, it is by no means satisfactory; for, besides containing many spurious species, the illustrations are very inferior, many of them being copied from the works of Buffon and other naturalists, while the few original drawings which appear are so poorly executed as to afford but little assistance to the ornithologist.

Since that time, the researches of travellers and naturalists in all parts of the world have brought to light many new species of Kingfishers, a few of which have been figured in Schlegel's lately published work on the Birds of the Dutch East Indies; but as yet there exists no treatise which embodies all that is at present known respecting this interesting group of Birds.

In the present volume, therefore, the author proposes to collect all the available information, published and unpublished, of the habits and manners of these beautiful birds, and to give a coloured lithographic illustration of each species. At present the number of known species amounts to about one hundred, and includes every imaginable variety of shape and colour. The brilliant plumage of our own Kingfisher may be regarded as the type of that of the family, although many species are to be found which far surpass it in size and splendour.

The author has been most fortunate in obtaining the cooperation of the best scientific naturalists of the day, while to Mr. A. R. WALLACE he is specially indebted for a series of notes on the species discovered by him in the Moluccas and New Guinea. Dr. MURIE, Prosector to the Zoological Society, who has contributed so largely towards our knowledge of the Anatomy of Vertebrates, has kindly undertaken to write a chapter on the Anatomy and Osteology of the Kingfishers, materials for which the author is now endeavouring to collect from every available source.

The Plates have been entrusted to Mr. J. G. KEULEMANS, of Leyden, an artist who, for faithful delineation and life-like character, can scarcely be surpassed.

The work will be published in quarterly parts, Imperial 8vo: and each part, price 10s. 6d., will contain eight beautifully coloured lithographs. It is believed that about thirteen parts will complete the volume. Two hundred copies only will be printed, and the value of the work will be thus considerably enhanced; for as soon as the required number of plates has been struck off, the plates will be effaced.

The low price at which the book is offered will, it is hoped, place it within the reach of every naturalist; while to those who are not naturalists it may be confidently stated that the beauty of the illustrations will render it a most attractive volume in the Library, or on the Drawing-Room table.

Intending Subscribers are respectfully requested to send their names to the Author, at "The Zoological Society of London," 11 Hanover Square, London, W.

CONTENTS OF NUMBER XV.—NEW SERIES.

	Page
XXI. Notes on <i>Mr. Layard's</i> 'Birds of South Africa.' By J. H. GURNEY, F.Z.S. (Plate VIII.); with Additional Notes by THE EDITOR . . .	253
XXII. Notes on Birds breeding in the neighbourhood of Sydney. By EDWARD P. RAMSAY, C.M.Z.S.	271
XXIII. Note on <i>Cichladusa arquata</i> and <i>C. guttata</i> . By Dr. M. T. VON HEUGLIN. (Plate IX.)	280
XXIV. Ornithological Notes from the Ethiopian Region. By ROWLAND M. SPERLING, Acting-Commander, H.M.S. 'Raccoon'	282
XXV. On the Genus <i>Acredula</i> . By R. B. SHARPE	295
XXVI. On the Species of Birds collected by <i>Dr. Stoliczka</i> in Thibet and the Himalayas. By AUGUST VON PELZELN	302
XXVII. On the Ornithology of Palestine. Part VIII. By the Rev. H. B. TRISTRAM, M.A., LL.D., F.R.S., &c.	321
XXVIII. Notices of Recent Ornithological Publications:—	
1. <i>English</i> :—Selater and Salvin's 'Exotic Ornithology,' parts iv.-vi.; Kennedy's 'Birds of Berkshire and Buckinghamshire;' 'Random Notes on Indian and Burman Ornithology;' Harting's Blank 'Catalogue' for Collectors.	335
2. <i>German</i> :—Von Martens's 'Zoology of the Prussian Expedition to Eastern Asia;' Supplement to Bädcker's 'Eggs of European Birds.'	340
3. <i>Swiss</i> :—'Bulletin de la Société Ornithologique de la Suisse,' vol. ii. part 1.	342
4. <i>Italian</i> :—Arrigoni's History of Ornithology; Salvadori on De Filippi's Ornithological Labours, and on <i>Prionochilus</i>	342
5. <i>Portuguese</i> :—Barboza du Bocage's papers in the 'Jornal de Sciencias de Lisboa.'	344
6. <i>American</i> :—Elliot's 'Birds of North America,' parts v.-ix.; Samuels's 'Ornithology and Oology of New England;' Ornithological Papers in the 'American Naturalist.'	345
7. <i>Australasian</i> :—Diggles's 'Ornithology of Australia,' parts xi.-xv.	348
XXIX. Letters, Announcements, &c.:—	
Letters from Messrs. W. E. Brooks, Swinhoe, and Blyth, Capt. Beavan, Mr. J. H. Gurney, and Prof. Huxley; Skeletons of the Dodo and Solitaire	349

Plate VI. is given with this Number.

Covers for binding last year's Volume may be had on application to the Publisher, at 1s. 4d. each.

Communications may be addressed to the EDITOR, Professor NEWTON, Magdalene College, Cambridge. Books for Review, Subscriptions, Advertisements, &c. to the Publisher, JOHN VAN VOORST, 1 Paternoster Row, London, E.C.

Members of the B. O. U. are requested to keep the Secretary, OSBERT SALVIN, Esq. (32 The Grove, Boltons, London, S.W.), informed of any change of Residence, that the Numbers of 'The Ibis' may be sent them accordingly.

THE IBIS,

A

QUARTERLY JOURNAL OF ORNITHOLOGY.

EDITED BY

ALFRED NEWTON, M.A.,
PROFESSOR OF ZOOLOGY AND COMPARATIVE ANATOMY
IN THE UNIVERSITY OF CAMBRIDGE,
F.I.S., F.Z.S., ETC., ETC.



LONDON:
JOHN VAN VOORST, 1, PATERNOSTER ROW.

Annual Subscription, payable before 31st March each year, £1 1s.

In preparation,

THE BIRDS OF NEW ZEALAND.

By WALTER BULLER, F.L.S.

AUTHOR OF THE N. Z. EXHIBITION ESSAY ON NEW-ZEALAND ORNITHOLOGY.

The work will comprise an Introductory Treatise, a short diagnosis of each Species, synoptical lists of the Nomenclature, and a Popular History and Description of all the known Species; illustrated by about *Twenty-five* Coloured Plates of New-Zealand Birds by a competent artist.

About 600 pages—Royal 8vo. Price £2 2s.

JOHN VAN VOORST: Paternoster Row, London, by whom Subscribers' names will be received.

THE GARE-FOWL OR GREAT AUK.

A beautiful stuffed *old male* specimen of ALCA IMPENNIS for sale. Apply to Herr WILHELM SCHLÜTER, Landwehrstræsse, No. 17, Halle a. S., Prussia.

BONES OF THE DODO (*Didus ineptus*) FROM MAURITIUS.

MR. E. HIGGINS (successor to MR. SAMUEL STEVENS), 24 BLOOMSBURY STREET, LONDON, W.C., has on sale *two very fine sets* of Dodos' bones, including sternum and sacrum, received from GEORGE CLARK, Esq., of Mauritius, the discoverer of these interesting relics. (*Vide* 'Ibis,' 1866, p. 141, and Prof. Owen's Memoir, *Trans. Zool. Soc.* vol. vi. part 2.)

Price of each set £12. Further details supplied on application.

RECORD OF ZOOLOGICAL LITERATURE FOR THE YEAR 1867 (VOL. IV.).

EDITED BY

A. C. L. G. GÜNTHER, M.A., M.D., F.R.S. ETC.

PART I. (*lately published*)

CONTAINS

THE REPORTS ON

MAMMALS, BIRDS, REPTILES, AND FISHES.

(THE ORNITHOLOGICAL PORTION BY PROFESSOR NEWTON.)

The Price of this Part is 10s.

THE

ENTOMOLOGICAL PORTION

JUST PUBLISHED,

Price 14s.

THE THIRD PART (*now in the Press*)

WILL COMPRISE THE

MOLLUSCA, CRUSTACEA, AND THE

LOWER ANIMALS,

And will be charged 10s.

The Price of the entire Volume will, as before, be £1 10s.

John Van Voorst, 1 Paternoster Row.

CONTENTS OF NUMBER XVI.—NEW SERIES.

	Page
XXX. On the former Existence of a large Pelican in the English Fens. By ALPHONSE MILNE-EDWARDS	361
XXXI. Notes on Various Indian Birds. By R. C. BEAVAN, Bengal Staff Corps, C.M.Z.S.	370
XXXII. On some of the Birds of Prey of Central Bulgaria. By C. FARMAN, C.E.	400
XXXIII. Synopsis of the Birds of Vancouver Island. By ROBERT BROWN, F.R.G.S.	414
XXXIV. A Sketch of the Birds of Portugal. By the Rev. A. C. SMITH, M.A.	429
XXXV. A Ninth additional List of Birds from Natal. By J. H. GURNEY, F.Z.S. (Plate X.)	460
XXXVI. Notices of Recent Ornithological Publications:—	
1. <i>English</i> :—Gould's 'Birds of Asia,' part xx.; Sharpe's 'Monograph of the <i>Alcedinidae</i> ,' part i.; Collingwood's 'Rambles of a Naturalist'; Parker's 'Monograph of the Shoulder-Girdle'; Pettigrew on Flight in the Animal Kingdom	472
2. <i>Dutch</i> :—Schlegel and Pollen—'Recherches sur la Faune de Madagascar,' part iii.; Millies on a newly discovered figure of the Dodo	470
3. <i>German</i> :—Jäckel on an old figure of the Dodo; Von Frauenfeld on a newly discovered figure of the Dodo and of a second short-winged bird	478
4. <i>Italian</i> :—Salvadori on new birds from Borneo	482
5. <i>American</i> :—Coues's 'Monograph of the <i>Alcidae</i> ,' and on the Birds of Arizona; Lawrence on new Central-American Birds.	483
XXXVII. Letters, Announcements, &c.:—	
Letters from Dr. Cunningham, Capts. Feilden and Beavan, Dr. Giglioli, and Messrs. Verreaux, G. R. Crotch, and P. L. Selater; The 'South African Quarterly Journal'; Further discovery of Dodo-figures in Holland; Announcement of Mr. Buller's 'Birds of New Zealand'; Incubation of the <i>Apteryx</i> in England; Return of Mr. Jesse from Abyssinia	486
Index	505
Titlepage, Preface, Contents, &c.	

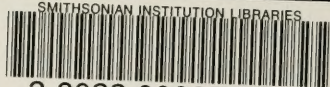
Covers for binding last year's Volume may be had on application to the Publisher, at 1s. 4d. each.

Communications may be addressed to the EDITOR, Professor NEWTON, Magdalene College, Cambridge. Books for Review, Subscriptions, Advertisements, &c. to the Publisher, JOHN VAN VOORST, 1 Paternoster Row, London, E.C.

Members of the B. O. U. are requested to keep the Secretary, OSBERT SALVIN, Esq. (32 The Grove, Boltons, London, S.W.), informed of any change of Residence, that the Numbers of 'The Ibis' may be sent them accordingly.



SMITHSONIAN INSTITUTION LIBRARIES



3 9088 00996 5567